SUTTON AND BRUCE'S ARITHMETIC

TABLES

LINEAR MEASURE

12	inches (in.)	= 1 foot	ft.
3	feet	= 1 yard	yd.
5½	yards, or 16½ feet	= 1 rod	rd.
40	rods	= 1 furlong	fur.
320	rods		mi.

1 mi. = 3,360 in.

A *hand*, used i = 4 in. A *knot*, used in measuring dist*n*, used in measuring the depth of the se

144	square incl	sq. ft.
9	square feet	sq. yd.
30¼	sq. yd., or	sq. rd.
160	square rod	A.
640	acres	sq. mi.

1 A. =) sq. ft.

A Section of la

Roofing, floorir ated by the *square*, which contains 10

In measuring l which contains 100 links (l.) and is 4 rods long, a square chain contains 16 s l., or 1 acre.

1728	cubic inch		cu. ft.
27	cubic feet	= 1 cubic yard	cu. yd.
128	cubic feet	= 1 cord	cd.
1			cd. ft.
			cd.

A *p* k, and 1 ft. high, a

MEASURES OF CAPACITY

Liquid Measure			Dry Measure		
4 gills	= 1 pint	pt.	2 pints	= 1 quart	qt.
2 pints	= 1 quart	qt.	8 quarts	= 1 peck	pk.
4 quarts	= 1 gallon	gal.	4 pecks	= 1 bushel	bu.

The *standard gallon* contains 231 cubic inches.
The *standard bushel* contains 2150.42 cubic inches.

The capacity of cisterns, reservoirs, etc., is often expressed in barrels (bbl.) of 31½ gallons each, or in hogsheads (hhd.) of 63 gallons each. In commerce, these vary in size.

AVOIRDUPOIS WEIGHT

16 ounces (oz.)	= 1 pound	lb.
100 pounds	= 1 hundredweight	cwt.
2000 pounds	= 1 ton	T.

One pound Avoirdupois = 7000 grains.

The *long ton* of 2240 pounds is used in the United States Custom Houses and in weighing coal and iron at the mines.

STANDARD WEIGHTS

1 bushel of wheat	= 60 lb.	1 bushel of potatoes	= 60 lb.
1 bushel of corn	= 56 lb.	1 barrel of flour	= 196 lb.
1 bushel of oats	= 32 lb.	1 barrel of pork	= 200 lb.
1 bushel of barley	= 48 lb.	1 keg of nails	= 100 lb.

APOTHECARIES' WEIGHT

60 grains (gr.)	= 1 dram	dr., or ℥.
8 drams	= 1 ounce	oz., or ℥.
12 ounces	= 1 pound	lb., or ℔.

One pound Apothecaries' weight = 5760 grains.

BRITISH OR STERLING MONEY

4 farthings	= 1 penny	*d.*
12 pence	= 1 shilling	*s.*
20 shillings	= 1 pound	£.
5 shillings	= 1 crown.	

The value of £1 is $4.8665 in United States gold coin.

The unit of French money is 1 franc, which is 19.3 cents. The unit of German money is 1 mark, which is 23.85 cents.

ARITHMETIC

LOWER BOOK

BY

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D. C. HEATH & CO., PUBLISHERS

1906

PREFACE

THE one definite purpose of this book is to provide an abundance of thoroughly usable material for the grades below the sixth year in school.

While the valuable features of the Lower Book of the Pupils' Series of Arithmetics are retained, there is interspersed much work that is new; in the present volume, which is, therefore, both a revision and an expansion, the increased material, carefully graded, has been so arranged as to employ judiciously the topical and the spiral plan of teaching arithmetic.

CONTENTS

ARITHMETIC

LOWER BOOK

CHAPTER I

COUNTING — ADDITION — SUBTRACTION

1. Oral Questions.

1. A needle has how many eyes?
2. Count ten needles.

3. How many ones are ten?
4. One apple and two apples are how many apples?
5. Two needles and two needles are how many needles?

6. A boy had three nickels and his mother gave him one more. How many nickels had he then?
7. An apple has how many stems?

8. Count ten stems.

2. Written Work.

1. Write nine figures.

2. Draw two squares. 

3. Write March, April, May. Count the spring months.

4. Make a square. Write 1 at each corner. How many corners has a square?

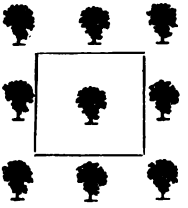
5. Draw five triangles. 

6. Draw three circles and put two dots in each.  How many dots?

7. Write the names of all the days in the week. How many days in a week?

8. Draw two squares. How many corners are in two squares?

9. Draw a large square for an orchard. Put a tree in the middle. Put a tree at each corner. Put a tree at the middle of each side. Count the trees in your orchard.



10. Draw five circles in a row; and then draw another row of five circles under the first five. Count ten circles.

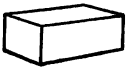
3. Written Exercises.

Add

1	2	1	2	1	2	3	1
2	2	3	3	4	4	3	5
—	—	—	—	—	—	—	—

4. Oral Questions.

1. How many Saturdays are in a week?
2. How many shoes make a pair?
3. How many months are in spring?
4. A horse has how many legs?
5. How many nails are on one hand?
6. How many days come between Sunday and the next Sunday?
7. How many days make one week?
8. A box has how many corners?

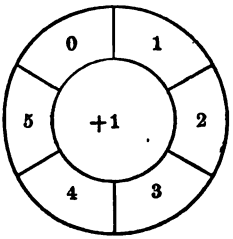


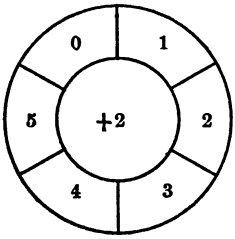
9. Three triangles have how many sides? △ △ △
10. How many nails are on both hands?

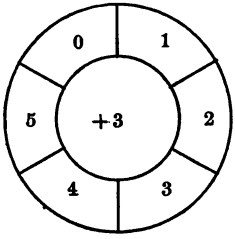
How many are:

2 and 2?	2 and 4?	3 and 3?
2 and 3?	3 and 2?	3 and 4?

5. Blackboard Drill.







6. Written Problems.

1. A girl gave 2 cents for a pencil and 1 cent for candy; how many cents did she spend?

2. A boy had 3 cents, and found another cent; how many cents did he then have?

3. A girl saw 2 robins and 3 bluebirds; how many birds did she see?

4. There are 3 kittens on the floor and 2 kittens on the bed; how many kittens in all?

5. Three birds were on one limb, and 3 birds were on another limb; how many birds were on both limbs?

6. How many cents will it take to buy a 5-cent ball and a 2-cent postage stamp?

7. John has 3 plums in one hand, and 4 plums in the other hand; how many plums in both hands?

7. The sign of Addition is +.
It is called *plus*.
It means *and*, or *more*.

1+2=3 is read One plus two equals three.

8. Written Exercises.

Add	6	2	3	4	5	1	1	2
	1	5	4	3	2	6	7	6
Add	6	5	3	4	4	5	6	8
	2	3	5	4	5	4	3	1

9. Oral Problems.

1. How many marks are one mark and two marks? How many are 1 and 2?

2. How many balls are 2 balls and 3 balls?

3. How many apples are 3 apples and 3 apples?

4. James had 3 peaches, and Mary had 4 peaches; how many peaches did both have?

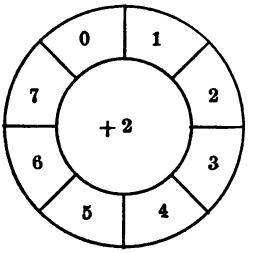
5. Lucy had 4 oranges, and Kate had 3 oranges; how many oranges did both have?

10. Oral Drill.

How many are:

3 balls and 2 balls?
3 balls and 3 balls?
3 balls and 4 balls?
3 pears and 5 pears?
4 pears and 4 pears?
2 plums and 4 plums?
2 plums and 5 plums?
2 plums and 6 plums?
5+3=?

11. Blackboard Drill.



12. In Addition we find the Sum.

13. Tell sums at sight:

3+2=	6+1=	5+2=	3+4=	5+3=
4+3=	3+3=	4+4=	2+4=	2+6=

14. Written Problems.

1. There were 2 birds on one tree, and 7 birds on another tree; how many birds were on both trees?

2. Henry caught 4 fish, and George caught 3 fish; how many did they both catch?

3. Ida has 3 pencils, and Kate has 5 pencils; how many pencils do both girls have?

4. A girl paid 2 cents for a pencil, 2 cents for a postage stamp, and 2 cents for an orange. How much did she pay in all?

5. Mary has 3 peaches, Ida has 2 peaches, and Kate has 1 peach. How many peaches do the three girls have?

15. Written Exercises.

Add

1.	2.	3.	4.	5.
1	2	2	1	3
2	1	0	0	1
1	2	3	4	2

16. Add

1.	2.	3.	4.	5.
3	4	5	1	7
0	1	2	0	2
3	2	1	6	1
				10

17. Copy and fill out sums:

1. $2+4=$
2. $6+3=$
3. $4+3=$
4. $3+1+2=$
5. $5+3=$
6. $7+2=$
7. $6+2=$
8. $2+3+1=$

18. Oral Problems.

1. One nickel and another nickel are worth how many cents?

2. Five and five make how many?

3. Lucy took an apple, and left 8 apples in the basket; how many apples were in the basket at first?

4. Eight and one make how many?

5. A boy had 7 marbles and found 3 more; how many marbles did he have then?

6. How many are 7 and 3?

7. One boy has 4 rabbits, and another boy has 5 rabbits; how many are 4 and 5?

8. A girl has 2 rabbits, and another has 8 rabbits; how many are 2 and 8?

9. On a limb there were 3 birds, on another limb 2 birds, and on a third limb 5 birds. How many are 3 and 2 and 5?

10. In the pond there were 6 ducks, and 2 ducks were flying over. 6+2=how many?

19. Tell sums at sight:

2+2=	3+4=	2+3+2=
2+3=	3+5=	1+2+3=
3+3=	2+6=	1+3+3=
2+4=	1+8=	2+2+3=
5+2=	4+5=	2+3+3=
6+2=	5+5=	2+4+2=

20. Written Problems.

1. A man has 4 horses in a pasture, and 6 horses at work. Add 4 and 6.

2. How many boys are 4 boys, 2 boys, and 2 boys?

3. A girl spent 4 cents for apples, 2 cents for plums, and 3 cents for an orange: Add 4 and 2 and 3.

4. How many girls are 3 girls, 2 girls, and 4 girls?

5. One man gives you 5 cents, and another man gives you 5 cents; how many cents do the men give you?

6. Mary has 2 books, Ida has 3 books, and Kate has 4 books; how many books do all three girls have?

7. John had 6 chickens and bought 3 more; how many did he have then?

8. There are 7 keys in one bunch and 3 keys in another; how many in both bunches?

21. Written Exercises.

	1.	2.	3.	4.	5.	6.	7.	8.
Add	2	2	2	2	2	2	2	2
	1	2	3	3	3	4	4	4
	1	1	1	2	3	1	2	3
	—	—	—	—	—	—	—	—

22. Find sums:

1+1+2	1+5+2	2+2+3
1+2+2	1+6+2	2+3+3
1+3+2	1+7+2	2+4+3
1+4+2	1+8+2	2+5+3

23. Oral Problems.

1. Put 3 splints with 4 splints; how many have you?

2. A girl had 4 cherries in one hand, and 4 cherries in the other hand. How many did she have in both hands?

3. Three white rabbits and five brown rabbits are how many rabbits?

4. Make a question about 2 and 3.

5. Five pigs in the pen and 3 pigs outside the pen are how many pigs?

6. Make a question about 4 pigs and 4 pigs.

7. Five girls in the house and four girls in the garden are how many girls?

8. Six boys spinning tops and 3 boys playing marbles are how many boys?

9. How many are 3 and 4 and 3?

24. Sight Drill.

3+4=	4+2+1=	6+1+0=
4+4=	4+3+1=	5+2+1=
5+4=	4+4+1=	5+3+1=
6+3=	3+3+2=	5+2+2=
8+1=	3+4+2=	5+4+0=
7+2=	3+3+3=	6+2+2=

25. 10 means that the 1 is ten, and the nought is nothing, or no one.

26. Written Problems.

1. Charles took 10 eggs from a nest and left 1; how many eggs were in the nest at first?

2. George. had 9 marbles and found 2 more; how many marbles did he have then?

3. Lucy picked 7 roses from one bush, and 4 from another; how many roses did she pick from the two bushes?

4. Fred saw 8 horses in one field, and 3 horses in another field; how many horses did he see in the two fields?

5. Mary's mother sold 9 pounds of butter and kept 3 pounds; how many pounds of butter did she have at first?

6. Frank has 8 chickens, and Lucy has 4 chickens; how many chickens do they both have?

7. A girl made 7 doll dresses one day and 5 the next day; how many doll dresses did she make?

8. John walked 6 miles from home and then walked back home; how far did he walk in all?

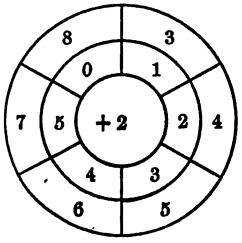
9. One cow gives 8 quarts of milk, and another gives 5 quarts; how many quarts of milk do both cows give?

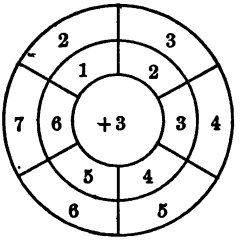
10. Henry hauled 7 loads of wood in the forenoon and 6 loads in the afternoon; how many loads did he haul that day?

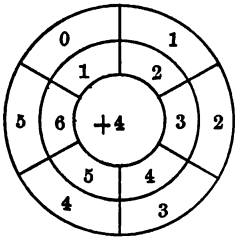
27. Oral Drill.

2+3=?	2+1+6=?	3+2+3=?
2+4=?	2+2+6=?	3+2+4=?
2+5=?	2+3+6=?	3+2+5=?
2+6=?	2+4+6=?	3+2+6=?
2+7=?	2+5+6=?	3+2+7=?
2+8=?	2+4+2=?	3+2+8=?
2+9=?	2+5+2=?	3+3+3=?
3+3=?	2+6+2=?	3+3+4=?
3+4=?	2+7+2=?	3+3+5=?
3+5=?	2+6+3=?	3+3+6=?
3+6=?	2+6+4=?	3+3+7=?
3+7=?	2+6+5=?	3+4+4=?

28. Blackboard Drill.







29. In 12 the 1 is a ten, and the 2 means two ones, or units.

30. Written Problems.

1. Last week had 7 days, and this week will have 7; how many days are in 2 weeks? How many are 7 and 7?

2. Susan is 8 years old, and Frank is 6 years older; how old is Frank?

3. A horse was 9 years old 5 years ago; how old is he now?

4. How many cents are in one dime and one nickel?

5. Lucy has 5 peaches, Ida 5, and Mary 4; how many peaches do the three girls have?

6. George has 6 books, Mary has 5, and Ida has 4; how many books do they all have?

7. Frank picked 6 quarts of berries, Fred picked 5 quarts, and Ida 3 quarts; how many quarts did they all pick?

8. There are 9 oranges in one dish and 6 oranges in another dish; how many oranges in both?

9. There are 8 trees in the front yard and 7 trees in the back yard; how many trees are in both yards?

31. Oral Exercises.

Give the sums:

4	4	4	4	4	4	4	4
4	5	6	7	8	9	10	11

5	5	5	5	5	5	5	5
4	5	6	7	8	9	10	11

32. Oral Problems.

1. George has 5 cents, Henry 5 cents, and Frank 1 cent; how much money do all have?

2. A girl spent 5 cents for a pen, 5 cents for a copy-book, and 2 cents for a pencil. How much money did she spend?

3. How much money must you have, if you are to buy a 5-cent top and a 5-cent ball, and keep 3 cents in your pocket?

4. Mary has 3 books, Lucy 3 books, and Ida 5 books; how many books do the three girls have?

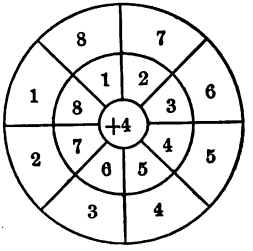
5. A boy had 5 rabbits after he had sold 6; how many rabbits did he have at first?

33. Oral Drill.

2+2+2+2=	3+4+1=
2+3+2+2=	4+4+2=
2+3+3+2=	5+3+3=
2+3+3+3=	5+1+5=
3+2+3+2=	5+2+5=
3+3+3+1=	6+1+5=

34. Blackboard Drill.

[NOTE. — The teacher will alter the figures when additional drills are required.]



35. Written Problems.

1. Fanny is 6 years old, her sister is 2 years older than Fanny, and her brother is 5 years older than her sister; how old is Fanny's brother?

2. Mary was born 7 years ago, and John was born 8 years before Mary was born; how old is John?

3. There are 8 doves on one side of the road, 5 doves on the other side, and 2 doves in the road; how many doves in all?

4. Fred had 12 lead-pencils and 3 slate-pencils; how many pencils did he have?

5. A boy came to school Monday 10 minutes late, Tuesday 5 minutes late, and Wednesday 1 minute late; how many minutes did he lose in the three days?

6. How many minutes are there from 10 minutes to nine till 6 minutes after nine?

7. In one class there are 8 boys and 8 girls; how many pupils are in the class?

36. Written Exercises.

Find sums:

1.	2.	3.	4.	5.	6.	7.	8.
7	7	7	7	7	7	7	7
2	3	4	5	6	7	8	9

9.	10.	11.	12.	13.	14.	15.	16.
8	8	8	8	8	8	8	8
1	2	3	4	5	6	7	8

37. Oral Problems.

1. Mary's mother bought milk; 3 pints, 2 pints, 4 pints, and 5 pints — how many pints for four days?

2. In three nests there are 6 eggs, 5 eggs, 2 eggs — how many eggs in three nests?

3. In a grove are 3 oaks, 2 cedars, 4 pines, and 2 magnolias — how many trees in the grove?

4. If you spend 5 cents, 4 cents, 3 cents, and 2 cents, how much money do you spend?

5. Count by twos to 12.

38. Oral Drill.

3+2+7=?	2+2+2+2=?
4+3+6=?	3+2+3+3=?
5+2+5=?	2+3+3+4=?
6+1+7=?	3+2+2+4=?
7+2+5=?	4+2+3+1=?
8+1+2=?	4+3+3+3=?
9+1+3=?	5+3+2+2=?
10+2+4=?	5+3+3+3=?
7+5+3=?	6+2+2+2=?
6+4+5=?	6+2+3+2=?
5+5+5=?	6+3+1+3=?
4+2+8=?	7+2+2+2=?
3+8+2=?	7+3+1+2=?
2+9+4=?	7+4+2+2=?
1+4+8=?	7+3+3+3=?

39. Written Exercises.

	1.	2.	3.	4.	5.	6.	7.	8.
Add	10	3	10	10	10	10	10	4
	1	10	5	2	4	3	6	10

	9.	10.	11.	12.	13.	14.	15.	16.
Add	1	2	3	4	5	4	5	4
	3	3	4	3	1	3	2	4
	2	4	1	2	3	2	1	2
	3	1	2	2	2	4	4	3

40. Find sums:

1. 3+3+3+4
2. 1+9+3+2
3. 2+1+4+3
4. 2+3+3+4
5. 1+6+4+5
6. 3+4+1+5
7. 3+5+1+6
8. 3+1+7+6
9. 4+1+7+4
10. 4+3+2+7
11. 4+2+5+4
12. 5+2+6+3

41. Find sums:

1. 2+1+7+6
2. 2+5+1+4
3. 6+1+7+2
4. 3+2+5+6
5. 3+6+2+3
6. 5+1+2+8
7. 3+1+6+5
8. 1+7+3+2
9. 4+2+6+3
10. 3+2+5+6
11. 8+3+1+2
12. 3+5+5+3

42. Add:

1.	2.	3.	4.	5.	6.	7.	8.
11	12	13	14	15	11	13	12
5	3	2	1	1	4	3	4

SUBTRACTION

43. Oral Problems.

1. A boy had 3 pencils, and lost one; how many did he then have? $3-1=2$

2. George had 4 apples; he kept 2 and gave the others to Frank; how many apples did he give to Frank?

3. There were 5 birds on a tree; 3 birds flew away; how many were left?

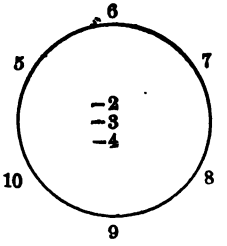
4. A man earned 6 dollars in two days; the first day he earned 3 dollars; how many dollars did he earn the second day?

5. A man worked all the week except 2 days; how many days did he work?

44. Oral Drill.

How many are:

4−2?	6−2?	7−2?	8−6?
5−3?	6−4?	7−4?	8−4?
5−2?	7−5?	8−3?	9−4?
6−3?	7−3?	8−2?	10−2?
9−3?	10−8?	10−5?	10−7?



45. The sign of Subtraction is −.
It is called *minus*, and means less.
10 − 7 = 3, is read Ten minus seven equals three.

46. Written Problems.

1. A girl had 6 rabbits and sold 2 of them; how many rabbits did she then have?

2. Lucy had 7 roses and gave Mary 4 of them; how many roses did Lucy then have? How many are $7-3$?

3. Frank had 8 peaches and gave Horace 5 of them; how many peaches did Frank then have? How many are $8-3$?

4. One side lacks 3 boys of having 9 at ball; how many boys are on that side? How many are $9-6$?

5. In two nests there are 10 eggs; in one there are 4; how many eggs are in the other nest? How many are $10-6$?

47. In Subtraction we subtract the Subtrahend from the Minuend, and find the Remainder (or Difference).

48. Oral Exercises.

Give remainders:

5	5	6	6	6	7	7	7
2	3	2	3	4	4	3	2
8	8	8	8	9	9	9	9
3	4	2	5	5	7	3	4
10	10	10	10	12	11	12	13
1	2	3	4	3	4	5	4

49. Oral Problems.

1. How many days are in two weeks and 2 days? $7+7+2=?$

2. Lewis had 16 marbles and gave away 5 of them; how many did he then have?

3. Mary had 13 roses and picked 3 more; how many had she then?

4. Two hens have 17 chicks; one has 11; how many has the other?

5. There are 11 eggs in one nest and 7 in another; how many eggs are in the two nests?

6. There are 9 boys playing ball, and 8 boys spinning tops; how many boys in all?

7. In two nests there are 18 eggs; in one there are 7; how many in the other?

50. Oral Drill.

$5+9=?$	$10-4=?$	$5+5-2=?$
$6+9=?$	$11-3=?$	$3+9-4=?$
$5+8=?$	$12-6=?$	$2+10-6=?$
$6+8=?$	$13-7=?$	$3+8-2=?$
$7+9=?$	$14-6=?$	$6+6-6=?$
$8+9=?$	$16-6=?$	$7+6-4=?$
$9+9=?$	$16-10=?$	$5+9-3=?$
$7+6=?$	$18-7=?$	$7+2-8=?$
$7+7=?$	$17-5=?$	$6+10-5=?$
$8+8=?$	$15-9=?$	$3+12-4=?$

51. Written Problems.

1. Of a piece of calico that was 18 yards long, it took all but 4 yards to make Helen two dresses; how many yards did it take for the dresses?

2. John had 6 peaches, and James had 9 more than John; how many peaches did James have?

3. Robert ate all of 9 oranges except 3; how many did he eat? Afterward he bought 5 oranges; how many did he have then?

4. A man earned 2 dollars Monday, 3 dollars Tuesday, and 3 dollars Wednesday; Thursday he spent all but 4 dollars; what did he spend?

5. A farmer has 17 horses; 11 are bay, and the others white; how many white horses does he own?

6. On one shelf there are 11 books, and on another there are 7; how many books are on the two shelves?

7. There are 6 plates on the table and 11 on the sideboard; how many plates in all?

8. There are 6 mules pulling one wagon, 4 mules pulling another wagon, and 6 mules pulling a third wagon; how many mules in all?

9. There were 18 wild ducks in the river; 4 of them flew away at one time and 4 at another time; how many were left in the river?

10. There were 11 crows in the corn-field, and 8 crows joined them afterward; how many were there then?

52. Oral Exercises.

Give sums:

9+7	11+6	8+9	7+9
6+7	12+5	8+8	9+8
7+8	10+4	8+5	7+5
4+9	12+5	7+6	5+8

53. Give remainders:

8−2	9−6	16−11	14−3
7−3	10−3	17−11	15−6
6−2	11−4	18−10	16−5
9−4	12−6	19− 9	17−7

54. Written Exercises.

Find sums:

1.	2.	3.	4.	5.	6.	7.	8.
13	12	11	11	12	11	9	8
3	4	5	7	5	6	9	10

9.	10.	11.	12.	13.	14.	15.	16.
8	7	6	5	3	7	7	5
9	7	6	5	8	3	4	2
1	2	3	4	5	6	7	8

55. Find remainders:

1.	2.	3.	4.	5.	6.	7.	8.
16	15	15	15	14	13	12	12
11	11	10	9	8	5	7	9

56. Oral Problems.

1. Mary read 10 pages in one hour, and 9 pages the next hour; how many pages did she read in the two hours?

2. Charles made 12 baskets one week, and 8 baskets the next week; how many baskets did he make in the two weeks?

3. Ida said to Lucy, "If you will give me your 8 roses, I shall then have 19." How many roses did Ida have?

4. Will drew from the well 7 buckets of water for the horses, and 13 for the cows; how many did he draw in all?

57. In 20, the 2 stands for 2 tens; the 0 stands for no unit.

5. Fred saw two flocks of wild geese flying south; in one flock he counted 10, and in the other he counted 11; how many did he count in the two flocks?

58. Oral Drill.

3+12?	18−9?	12−5?	3+ 8− 2?
4+13?	17−7?	11−4?	4+ 9− 3?
6+12?	16−5?	10−6?	5+10− 4?
7+11?	15−6?	17−8?	7+ 9− 6?
5+ 9?	14−8?	19−4?	8+ 7− 3?
11+ 8?	13−7?	16−8?	9+ 9−10?

59. Written Problems.

1. Ruth had 10 roses, and Mary had 9; they gave them to their teacher; how many roses did both give?

2. There are 10 geese in one flock and 9 in another; how many geese are in the two flocks?

3. A farmer drove 19 sheep to market, and he sold all but 7; how many sheep did he sell?

4. In a freight train there were 4 red cars, 6 brown cars, 5 white ones, and 4 yellow ones; how many cars in all?

5. There are 8 yoke of oxen pulling one heavy wagon, and 7 yoke pulling another; how many yoke of oxen in all?

6. In one sash there are 9 panes, and in another 6, of which 2 are broken; how many whole panes are in the two sashes?

7. John saw two coveys of partridges; in one there were 11 birds, and in the other there were 8; how many birds were in both coveys?

8. On this side of the river there are 7 boats, and on the other side there are 12 boats; how many boats are there on both sides?

9. Lewis passed by 13 houses on one farm, and 6 houses on another farm; how many houses on both farms?

10. Mrs. Jones has 14 keys in one bunch, and 5 keys in another bunch; how many keys are there in both bunches?

60. Oral Exercises.

Give sums:

11	10	12	13	12	14	14	13
5	7	7	6	5	5	6	5

61. Give remainders:

16	17	17	18	18	18	18	18
4	5	6	7	8	9	10	13
16	19	19	15	15	17	20	21
11	9	10	10	9	9	9	9
13	13	13	14	15	16	17	18
3	4	5	6	7	9	11	12

62. Written Exercises.

Find results:

1.	$3+6-2=?$	2.	$6+4-2=?$	3.	$10+7+1=?$
4.	$3+7-3=?$	5.	$6+6-3=?$	6.	$9+3+7=?$
7.	$4+7-5=?$	8.	$7+7-4=?$	9.	$5+4+8=?$
10.	$4+8-5=?$	11.	$8+7-4=?$	12.	$4+6+7=?$
13.	$5+7-6=?$	14.	$7+8-3=?$	15.	$3+10+6=?$
16.	$5+9-6=?$	17.	$9+9-5=?$	18.	$2+7+8=?$
19.	$6+8-5=?$	20.	$10+7-6=?$	21.	$3+8+9=?$
22.	$6+9-7=?$	23.	$10+11-7=?$	24.	$6+5+4=?$
25.	$7+8-6=?$	26.	$9+11-6=?$	27.	$7+6+5=?$
28.	$7+9-8=?$	29.	$8+12-5=?$	30.	$8+9+4=?$

63. Oral Problems.

1. There are 11 pigeons on one side of the roof, and 9 pigeons on the other side; how many pigeons are on both sides?

2. There are 11 sheep in one lot, and 10 sheep in another lot; how many sheep are in the two lots?

3. There were 7 days in last week, and there will be 7 days in this week, and 7 days in next week; how many days are there in three weeks?

4. There were 20 birds in a tree, and 2 others came to them; how many were then in the tree?

5. If one vine bears 12 melons, and another vine bears 13 melons, how many do both bear?

6. Mrs. Jones sold 16 pounds of butter last week, and 10 pounds this week; how many pounds did she sell in the two weeks?

64. Oral Drill.

8+3+4=?	19−5=?	9+9−4=?
7+4+5=?	18−7=?	9+7−5=?
6+7+4=?	17−9=?	8+6−4=?
2+9+8=?	16−8=?	7+8−3=?
3+8+7=?	19−8=?	7+9−6=?
4+2+9=?	21−9=?	6+9−7=?
5+3+8=?	22−8=?	10+9−3=?
6+6+4=?	26−9=?	11+9−7=?
7+3+3=?	21−7=?	12+7−8=?
4+7+8=?	19−6=?	13+5−9=?

65. Written Problems.

1. Harry rode 9 miles to town, and then rode back; how many miles did he ride? If he had walked and led his horse 3 miles, how far would he have ridden?

2. A field of 19 acres is planted in corn and cotton; 11 acres are in corn; how many acres are in cotton?

3. One house has 6 rooms, another has 9 rooms, and still another has 4; how many rooms are there in the three houses?

4. Ellen is 9 years old; how many years will there be before she is 18 years old?

5. One pig weighs 8 pounds, a second weighs 7 pounds, and a third weighs 5 pounds; how much do they all weigh?

6. In one field there are 11 men plowing, and 16 men hoeing; how many men are at work in the field?

7. In one wheel there are 16 spokes, and in another wheel there are 14; how many spokes are there in the two wheels?

$$\begin{array}{r} 16 \\ +14 \\ \hline 30 \end{array}$$

6+4=10. Write the 0 in the first place of the sum, and add the 1 ten to the tens.

$$\begin{array}{r} 16 \\ 14 \\ \hline 10 = 6+4 \\ 2 = 1+1 \\ \hline 30 \end{array}$$

8. There are 17 hands hoeing and 13 hands plowing; how many hands are at work?

66. Written Exercises.

Find remainders:

1.	2.	3.	4.	5.	6.	7.	8.
28	27	26	25	23	29	28	32
12	15	14	12	11	18	17	21

Find sums:

9.	10.	11.	12.	13.	14.	15.	16.
12	12	12	13	12	12	12	12
16	19	14	19	12	21	20	9

67. Find remainders:

1.	2.	3.	4.	5.	6.	7.	8.
26	27	26	25	24	33	32	21
12	12	14	13	12	11	10	9

68. Find sums:

1.	2.	3.	4.	5.	6.	7.	8.
13	13	13	13	13	13	13	13
29	24	23	22	21	20	19	18

69. Find remainders:

1.	2.	3.	4.	5.	6.	7.	8.
38	37	36	35	34	33	32	31
13	13	13	13	13	13	13	13

$$\begin{array}{r} 31 \\ -13 \\ \hline 18 \end{array} \qquad \begin{array}{l} 31 = 20 + 11 \\ 13 = 10 + \ 3 \\ \hline 18 = 10 + \ 8 \end{array}$$

CHAPTER II

MULTIPLICATION — SHORT DIVISION — REVIEWS — SIMPLE MEASURES

MULTIPLICATION

70. Oral Questions.

1. Rose had 2 oranges, and Mary had twice as many oranges as Rose had; how many did Mary have?

2. Ida had 3 pears, and Kate had 3 pears; how many did both have? $3+3=?$ How many are twice 3?

3. How many pages are on 3 leaves?

4. How many are 3 times 2?

5. John had 4 marbles and George had twice as many; how many marbles did George have? $4+4=?$

6. If you have 4 pockets with 2 marbles in each, how many marbles do you have?

7. If you have 2 pockets with 4 marbles in each, how many marbles do you have?

71. The sign of Multiplication is $\times$.
It is read "times," or "multiplied by."
The sign for dollars is \$, as, \$5.
$2\times\$5$ is read, Two times five dollars.
$\$5\times 2$ is read, Five dollars multiplied by two.

72. Written Exercises.

Multiply 13 by 2.

13	13 [Multiplicand]
+13	2 [Multiplier]
26	26 [Product]

2 times 3 are 6. Write the 6 under the multiplier in the units' place.
2 times 1 are 2. Write the 2 in the tens' place.
$13+13=26$; or $2\times13=26$.

Find products:

1.	2.	3.	4.	5.	6.
3	4	5	2	3	4
2	2	2	3	3	3
7.	8.	9.	10.	11.	12.
10	11	12	13	14	10
2	2	2	2	2	3

73. Written Exercises. — Review.

Find sums:

1.	2.	3.	4.	5.	6.	7.	8.
12	13	14	15	16	26	27	27
13	13	13	14	14	14	14	15
9.	10.	11.	12.	13.	14.	15.	16.
12	13	14	15	14	13	16	18
13	13	13	13	13	14	3	9
12	13	13	13	15	17	9	7

Find remainders:

1.	2.	3.	4.	5.	6.	7.	8.
24	32	28	34	33	32	31	31
12	12	14	12	12	12	12	13

74. Oral Questions.

1. How many pages are on 4 leaves? 2+2+2+2=? How many are 4 times 2?

2. How many cents are in 2 nickels? 5+5=? How many are twice 5?

3. How many pages are on 5 leaves? 2+2+2+2+2=? How many are 5 times 2?

4. How many work-days are in 2 weeks? 6+6=? How many are twice 6?

5. How many sleeves do 6 coats have? Six twos make how many? How many are 6 times 2?

6. How many days are there in 2 whole weeks? How many are twice 7?

7. How many wheels do 7 carts have? Seven twos added together make how many? How many are 7 times 2?

75. Copy and complete:

1 + 1=?	6+ 6=?	1+1+1=?
2 times 1=?	2× 6=?	3×1=?
2 + 2=?	7+ 7=?	2+2+2=?
2 times 2=?	2× 7=?	3×2=?
3 + 3=?	8+ 8=?	3+3+3=?
2 times 3=?	2× 8=?	3×3=?
4 + 4=?	9+ 9=?	4+4+4=?
2 times 4=?	2× 9=?	3×4=?
5 + 5=?	10+10=?	5+5+5=?
2 times 5=?	2×10=?	3×5=?

76. Written Problems.

1. There are 3 horses in the stable, and twice as many in the pasture; how many horses in all? How many are $?\times 3$ added to 3?

2. There are 2 cows in the pasture, and 3 times as many in the lot; how many cows in all? $2+3\times 2=?$

3. James has 4 marbles, and Tom has twice as many; how many marbles do both boys have?

77. Liquid Measure.

2 pints = 1 quart.
4 quarts = 1 gallon.

4. A cow gave 7 quarts of milk; how many pints did she give?

1 qt. = 2 pt.
7 qt. = 7×2 pt.

5. A man sold 5 gallons of milk; how many quarts did he sell?

1 gal. = 4 qt.
5 gal. = 5×4 qt.

6. How many pints are in 4 quarts and 1 pint? $1+2\times 4=?$

7. A cart has 2 wheels, a wagon has twice as many wheels as a cart, and a freight car has twice as many wheels as a wagon; how many wheels do all three have?

78. Oral Problems.

1. Mr. Brown gave 2 bushels of corn to a poor man, and gave 4 times as many bushels to another; how many bushels of corn did he give in all? $2+4\times2=?$

2. Lewis wrote 6 letters, Mary wrote 2, and James wrote twice as many as Mary; how many letters did all write?

3. In the stable there are 2 white horses, and twice as many black ones; in the pasture there are 14 horses; how many more horses are in the pasture than in the stable?

4. John walked 6 miles one day, and twice as many miles the next day; how many miles did he walk in the 2 days?

5. One flag has 7 red stripes and 6 white stripes; how many red stripes do 2 flags have? How many white stripes do 2 flags have? How many stripes of both colors do 2 flags have?

6. If a shoemaker can make 2 pairs of shoes in 1 day, how many pairs can he make in 8 days? How many shoes can he make in 3 days?

7. Tom has 8 pecans, and Will has twice as many as Tom; how many has Will? How many do both boys have?

8. Lee had 3 fine ducks; he let James have each duck for 4 pigeons; how many pigeons did he get for his ducks? $4+4+4=?$ How many pigeons are 3 times 4 pigeons?

9. Fred spent 5 cents for a pen, and twice as much for an inkstand; how much did he spend for both?

10. George walks 2 miles to school; how far does he walk in 3 days going to and coming from school?

11. If a man plows 3 acres a day for 4 days, how many acres does he plow? $3+3+3+3=?$ How many acres are 4 times 3 acres? $4\times3=?$

12. A man hauled 3 loads of 5 bales of cotton each; how many bales did he haul? $5+5+5=?$ How many bales are 3 times 5 bales? $3\times5=?$

13. A carpenter worked 5 days for 3 dollars a day; how much money did he get? $3+3+3+3+3=?$ How many dollars are 5 times 3 dollars? $5\times3=?$

14. When you come 5 days in the week, how many days do you come to school in 4 weeks?

15. How many days are in 3 weeks? $7+7+7=?$ How many days are 3 times 7 days?

16. How many feet are in 7 yards? Seven threes added together make how many? How many feet are 7 times 3 feet?

79. Copy and complete:

$3+3+3=?$	$2\times4=?$	$2+2\times2=?$
$3\times3=?$	$4\times2=?$	$3+2\times3=?$
$4+4+4=?$	$3\times4=?$	$4+2\times4=?$
$3\times4=?$	$4\times3=?$	$5+3\times3=?$
$5+5+5=?$	$3\times5=?$	$6+3\times4=?$
$3\times5=?$	$5\times3=?$	$7+3\times5=?$
$6+6+6=?$	$3\times6=?$	$8+3\times6=?$
$3\times6=?$	$6\times3=?$	$9+3\times7=?$
$7+7+7=?$	$3\times7=?$	$9+4\times2=?$
$3\times7=?$	$7\times3=?$	$9+4\times3=?$

80. Written Problems.

1. There are 3 pigeons on the barn, and 4 on the stable, and there are three times as many on the ground as there are on both barn and stable; how many pigeons in all?

2. John went to school 3 weeks, and missed one day in that time; how many days did he go to school in the 3 weeks?

3. If 7 yards of calico make a dress, how many yards will it take to make 3 such dresses?

4. If a man can walk 4 miles per hour, how many miles can he walk in 4 hours?

5. If 1 fork has 4 prongs, how many prongs do 5 such forks have? $4+4\times4=?$ $5\times4=?$

6. On a hill there are 2 oak-trees, 3 times as many cedars as oaks, and 3 times as many pines as cedars; how many pine-trees are on the hill?

7. Mr. Jones has 4 miles of wire fence on his farm; on the ranch across the river there are 5 times as many miles of wire fence; how many miles of wire fence are there on the ranch?

8. Fred's fishing line is 6 feet long, John's is twice as long as Fred's, and the fisherman's line is twice as long as John's; how long is the fisherman's line?

9. If a boy eats 3 meals each day, how many meals does he eat in 6 days?

10. Mary read 7 pages Tuesday, and 3 times as many on Wednesday; how many did she read in both days?

81. Written Exercises.

Find remainders:

1.	2.	3.	4.	5.	6.	7.	8.
23	32	31	40	34	31	30	20
12	12	12	12	15	13	12	9
9.	10.	11.	12.	13.	14.	15.	16.
44	44	44	44	44	43	42	41
22	23	24	25	26	26	26	27

82. Find sums:

1.	2.	3.	4.	5.	6.	7.	8.
4	10	8	7	6	5	4	3
5	3	10	11	7	4	8	9
9	7	3	10	11	9	9	8
7	4	9	3	12	11	6	7
6	6	5	2	3	13	5	6
2	9	7	5	7	7	10	5
8	5	6	8	2	8	11	22

83. Find products:

1.	2.	3.	4.	5.	6.	7.	8.
23	24	11	12	12	11	10	11
2	2	3	3	4	5	6	6

Multiply 13 by 4.

$13 = 10 + 3$

$\underline{\qquad 4}$

$40 + 12 = 52$

We say: 4 times 3 are 12, and write the 2 under the 4; then we say 4 times 1 are 4, and add the 1 ten from the 12, making 5.

$\begin{array}{r} 13 \\ \underline{4} \\ 52 \end{array}$

DIVISION

84. Oral Questions.

1. If 2 tops cost 10 cents, what does 1 top cost? What must 2 be multiplied by to make 10?

2. If 5 oranges cost 10 cents, what does 1 orange cost? What must 5 be multiplied by to make 10?

3. A man worked 6 days, and received 12 dollars; what did he make a day? What must 6 be multiplied by to make 12?

4. A man worked for 2 dollars a day, and received 12 dollars; how many days did he work? What must 2 be multiplied by to make 12?

5. How many oranges at 3 cents each can be bought for 15 cents? What must 3 be multiplied by to make 15?

6. How many pens at 5 cents each can be bought for 15 cents? What must 5 be multiplied by to make 15?

85. Oral Drill.

2× 2=?	3× 2=?	3 times what = 6?
2× 3=?	3× 3=?	2 " " = 8?
2× 4=?	3× 4=?	3 " " = 9?
2× 5=?	3× 5=?	2 " " =10?
2× 6=?	3× 6=?	3 " " =12?
2× 7=?	3× 7=?	2 " " =14?
2× 8=?	3× 8=?	3 " " =15?
2× 9=?	3× 9=?	2 " " =16?
2×10=?	3×10=?	3 " " =18?

86. Written Problems.

1. How many pencils at 3 cents each can be bought for 36 cents?

$$3\overline{)36}\quad 12$$

2. If you walk 2 miles an hour, how many hours will it take to walk 24 miles?

3. To walk 36 miles, how many times must a man walk 3 miles?

4. How many oranges at 3 cents each may be bought for 42 cents?

$$3¢\overline{)42¢}$$

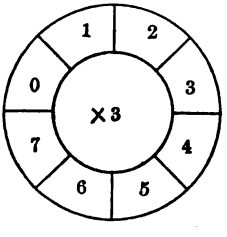
14 times.

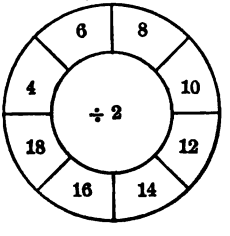
42 cents is the Dividend.
3 cents is the Divisor.
14 times is the Quotient.

3 in 4 tens is 1 ten, and 1 over, which is a ten; add this ten to the 2 units, making 12 units. 3 in 12 units is 4 units. 3¢ is contained in 42¢ 14 times. If you spend 3¢ for an orange 14 times, you buy 14 oranges.

87. In Division we find the Quotient.
The sign of Division is ÷.
6 ÷ 2 is read, Six divided by two.

88. Blackboard Drills.





89. Oral Problems.

1. Alice had 15 chestnuts, which she divided equally among 3 girls; how many did each girl get?

2. Alice gave 5 chestnuts to each of 3 girls; how many did she give to all?

3. Alice gave some girls 15 chestnuts, giving to each girl 5; how many girls?

4. To walk 12 miles, how many times must a man walk 3 miles?

5. To walk 12 miles, how many times must a man walk 4 miles?

6. Mary had 4 apples; her mother had 3 times as many, which she made into pies, putting 2 apples to each pie; how many pies did she make?

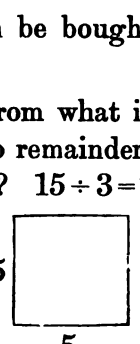
7. If Lucy had 2 more quarts of strawberries, she would have 3 times 4 quarts; how many quarts has she?

8. To how many boys can 16 apples be given, if 4 apples be given to each?

9. How many pencils at 3 cents each can be bought for 30 cents?

10. Subtract 3 from 15; then subtract 3 from what is left; then 3 again, and so on, until there is no remainder. How many times can 3 be subtracted from 15? $15 \div 3 = ?$

11. Here is a square garden, 5 rods to each side. How many rods all around? $5+5+5+5=?$ 4 times 5 are how many?



90. Oral Questions.

1. How many nickels is a quarter-dollar worth? $25 \div 5 = ?$ $30 \div 5 = ?$ $35 \div 5 = ?$

2. Mary has 8 nickels; how many cents are in 8 nickels? How many cents are in 9 nickels?

3. John has 40 cents in nickels; how many nickels has he? $40 \div 5 = ?$ $45 \div 5 = ?$

4. How many fives are in 10? In 50?

5. How many tens are in 30? In 40? In 50?

6. How many tens are in 21, and how many over? How many tens are in 32, and how many over? In 43, and how many over? In 54, and how many over?

7. How many tens are in 3×6? How many over? How many tens are in 3×7? How many over?

91. Written and Oral Exercises.

$4 \times 2 = ?$	$8 \div 4 = ?$	$5 \times 2 = ?$	$10 \div 5 = ?$
$4 \times 3 = ?$	$12 \div 4 = ?$	$5 \times 3 = ?$	$15 \div 5 = ?$
$4 \times 4 = ?$	$16 \div 4 = ?$	$5 \times 4 = ?$	$20 \div 5 = ?$
$4 \times 5 = ?$	$20 \div 4 = ?$	$5 \times 5 = ?$	$25 \div 5 = ?$
$4 \times 6 = ?$	$24 \div 4 = ?$	$5 \times 6 = ?$	$30 \div 5 = ?$
$4 \times 7 = ?$	$28 \div 4 = ?$	$5 \times 7 = ?$	$35 \div 5 = ?$
$4 \times 8 = ?$	$32 \div 4 = ?$	$5 \times 8 = ?$	$40 \div 5 = ?$
$4 \times 9 = ?$	$36 \div 4 = ?$	$5 \times 9 = ?$	$45 \div 5 = ?$
$4 \times 10 = ?$	$40 \div 4 = ?$	$5 \times 10 = ?$	$50 \div 5 = ?$
$4 \times 11 = ?$	$44 \div 4 = ?$	$5 \times 11 = ?$	$55 \div 5 = ?$
$4 \times 12 = ?$	$48 \div 4 = ?$	$5 \times 12 = ?$	$60 \div 5 = ?$

92. Written Exercises.

Find sums:

1.	2.	3.	4.	5.	6.	7.	8.
31	23	26	36	27	18	19	19
22	27	27	27	25	24	34	23
9	8	8	9	5	7	6	9

93. Find remainders:

1.	2.	3.	4.	5.	6.	7.	8.
26	25	24	24	34	33	32	31
14	14	14	15	15	16	17	18

9.	10.	11.	12.	13.	14.	15.	16.
42	42	42	42	52	62	61	60
12	13	22	23	34	35	35	46

94. Find products:

1.	2.	3.	4.	5.	6.	7.	8.
10	11	12	11	11	12	13	14
5	5	3	6	4	4	4	4

9.	10.	11.	12.	13.	14.	15.	16.
23	13	13	23	24	22	23	24
3	3	4	3	3	4	4	4

95. Find quotients:

1.	2.	3.	4.	5.	6.	7.
3)21	3)24	2)24	6)24	5)25	2)18	3)27

96. Written Problems.

1. Lucy walks home in 14 minutes; when she walks to school she walks twice as fast; in how many minutes does she walk to school?

2. How much more is 5 times 9 than 4 times 6?

3. At 5 miles an hour, how many hours would it take to row a boat 40 miles?

4. Mr. Jones sold 3 calves at $13 each; how much money did he get for all?

5. A farmer has 8 bales of cotton at the gin, 4 in his cotton-house already picked, and 6 bales, yet to be picked, in the field; how many bales in all?

6. Frank traded 55 pecans for marbles, giving 5 pecans for each marble; how many marbles did he get?

7. This week there are 68 pupils belonging to a school; last week there were 59; how many new pupils have come this week?

8. If the sun shines 2 hours on Saturday, and 5 times as long on Sunday, how many hours does it shine on both days?

9. If it rains 4 days in March, and 4 times as many days in April, how many days does it rain in the two months?

10. A ship sailed 45 miles in 5 hours; how many miles was that per hour?

11. One fish weighed 4 pounds, and another weighed 3 times as much; how much did both weigh?

97. Oral Questions.

1. How many are 3×6? How many are 6×3?

2. How many work-days are there in three weeks? Is that 6 times 3 weeks, or is it 3 times 6 work-days?

3. How many feet are there in 6 yards? Is that 6 times 3 feet, or is it 3 times 6 yards?

4. How many are 3×7? How many are 7×3?

5. How many days are there in three weeks? Is that 3 times 7 days, or 7 times three weeks?

6. How many days are there in 4 weeks? Is that 4 times 7 days, or 7 times 4 weeks?

7. How many quarts are in 7 gallons? Is that 7 times 4 quarts, or 4 times 7 gallons?

8. How many fours in 28? How many sevens in 28?

9. How many days are in 5 weeks?

98. Written and Oral Exercises.

$6\times 2=?$	$12\div6=?$	$7\times 2=?$	$14\div7=?$
$6\times 3=?$	$18\div6=?$	$7\times 3=?$	$21\div7=?$
$6\times 4=?$	$24\div6=?$	$7\times 4=?$	$28\div7=?$
$6\times 5=?$	$30\div6=?$	$7\times 5=?$	$35\div7=?$
$6\times 6=?$	$36\div6=?$	$7\times 6=?$	$42\div7=?$
$6\times 7=?$	$42\div6=?$	$7\times 7=?$	$49\div7=?$
$6\times 8=?$	$48\div6=?$	$7\times 8=?$	$56\div7=?$
$6\times 9=?$	$54\div6=?$	$7\times 9=?$	$63\div7=?$
$6\times10=?$	$60\div6=?$	$7\times10=?$	$70\div7=?$
$6\times11=?$	$66\div6=?$	$7\times11=?$	$77\div7=?$
$6\times12=?$	$72\div6=?$	$7\times12=?$	$84\div7=?$

99. Written Problems.

1. How many cocoanuts can be bought for 84 cents, if each costs 7 cents?

2. How many barrels of flour can be bought for $54, if each barrel costs $6?

3. How many barrels of flour could be bought for $54, if the price should go up to $9 per barrel?

4. A family uses 10 pounds of flour per day; how much is used in 8 days? How much is used in 9 days?

5. A farmer bought 5 plows at $8 each, and a wagon for twice as much as all the plows cost; how much did he pay for the plows and the wagon?

6. If a cord of wood costs $4, how much do 7 cords cost? How much do 8 cords cost?

7. If a horse can walk 5 miles every hour, how many miles can he walk in 7 hours?

8. If a man sleeps 8 hours per day, how many hours does he sleep in 6 days?

9. If a man works 6 days per week, how many days does he work in 8 weeks?

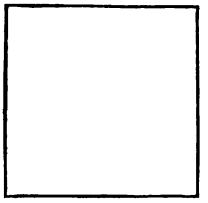
10. How many days are in 7 weeks? How many weeks are in 49 days?

11. An orchard has 7 rows of trees, 8 trees to the row; how many trees are in the orchard?

12. Divide 56 by 7. Divide 56 by 8.

13. A farmer's plow-hands plow 8 acres per day; in how many days will they plow 64 acres?

100. Oral Exercises.



1. Here is a square inch. How many inches all around?

2. Draw a square 2 inches on every side. How many inches all around?

3. A man built a fence around a square lot. The fence was 80 yards long. How long was each side?

101. Written Exercises.

Find remainders:

1. 32 − 9	5. 53 − 19	9. 32 − 19	13. 41 − 22
2. 33 − 19	6. 61 − 28	10. 30 − 19	14. 53 − 28
3. 43 − 28	7. 62 − 39	11. 42 − 27	15. 62 − 34
4. 32 − 8	8. 60 − 49	12. 36 − 27	16. 71 − 34

102. Find products:

1.	2.	3.	4.	5.	6.	7.	8.
16	17	18	19	21	22	23	24
4	5	5	5	4	4	4	4

9.	10.	11.	12.	13.	14.	15.	16.
11	11	12	13	14	15	14	20
6	7	6	7	5	6	7	5

103. Find quotients:

4)60 5)80 5)90 5)95 4)84 4)92 3)96 4)96

104. In 104, the 1 means a hundred, the 0 means no ten, and the 4 means four units.

105. Written Exercises. — Addition.

1.	2.	3.	4.	5.	6.
11	21	36	20	20	23
13	12	10	30	10	13
24	24	27	30	10	14
46	33	22	10	25	25
—	—	—	—	—	—

7.	8.	9.	10.	11.	12.
14	24	42	15	21	32
26	16	11	37	35	33
23	32	30	42	27	14
—	—	—	—	—	—

106. Find remainders:

1. $75-28$	3. $72-13$	5. $99-33$	7. $110-51$
2. $85-29$	4. $64-19$	6. $100-33$	8. $120-45$

107. Find products:

1. 5×21	4. 5×51	7. 6×21	10. 7×22
2. 5×31	5. 4×61	8. 7×21	11. 6×23
3. 5×41	6. 3×71	9. 8×21	12. 5×24

108. Find quotients:

1. $120\div5$	4. $244\div4$	7. $147\div7$
2. $125\div5$	5. $246\div6$	8. $154\div7$
3. $155\div5$	6. $213\div7$	9. $161\div7$

109. Oral Problems.

1. A man worked 9 hours a day for 6 days; how many hours did he work? Is that 6 times 9, or 9 times 6?

2. A man worked 6 hours a day for 9 days; how many hours did he work?

3. A boy bought 8 quarts of berries at 7 cents a quart; how much did he pay? Is that 8 times 7 cents, or is it 7 times 8 quarts? $56 \div 8 =$ what quotient?

4. A girl gave 6 playmates 6 pecans each; how many did she give? Is that 6 times 6 playmates, or is it 6 times 6 pecans? $36 \div 6 =$ what quotient?

5. A boy paid 56 cents for 7 quarts of berries; how much did each quart cost? $56 \div 7 =$ what quotient?

6. A boy paid 56 cents for berries at 8 cents a quart; how many quarts did he get? $7 \times 8 =$ what product?

110. Written and Oral Exercises.

$8 \times 2 = ?$	$16 \div 8 = ?$	$2 \times 8 = ?$	$16 \div 8 = ?$
$8 \times 3 = ?$	$24 \div 8 = ?$	$3 \times 8 = ?$	$24 \div 3 = ?$
$8 \times 4 = ?$	$32 \div 8 = ?$	$4 \times 8 = ?$	$32 \div 8 = ?$
$8 \times 5 = ?$	$40 \div 8 = ?$	$5 \times 8 = ?$	$40 \div 5 = ?$
$8 \times 6 = ?$	$48 \div 8 = ?$	$6 \times 8 = ?$	$48 \div 8 = ?$
$8 \times 7 = ?$	$56 \div 8 = ?$	$7 \times 8 = ?$	$56 \div 7 = ?$
$8 \times 8 = ?$	$64 \div 8 = ?$	$8 \times 8 = ?$	$64 \div 8 = ?$
$8 \times 9 = ?$	$72 \div 8 = ?$	$9 \times 8 = ?$	$72 \div 9 = ?$
$8 \times 10 = ?$	$80 \div 8 = ?$	$10 \times 8 = ?$	$80 \div 10 = ?$
$8 \times 11 = ?$	$88 \div 8 = ?$	$11 \times 8 = ?$	$88 \div 11 = ?$
$8 \times 12 = ?$	$96 \div 8 = ?$	$12 \times 8 = ?$	$96 \div 12 = ?$

111. Written Problems.

1. Albert is 19 years old; his father is 3 times as old as Albert; how old is Albert's father?

2. December has 31 days, January 31, and February 28; how many days are in the three winter months?

3. In a leap-year February has 29 days; how many weeks? How many days over?

4. A farmer feeds his hogs a bushel of corn every 8 days; how much corn does he give them in 64 days?

5. There are 8 rows of trees with 9 trees in each row; how many trees are there in all?

6. If a river runs 6 miles per hour, in how many hours does it run 132 miles?

7. If a man pays $20 per month for board, how much does he pay in 8 months?

8. A farmer has 32 acres in cotton, 54 acres in corn, and 26 acres in oats; how many acres in all?

9. In a barrel was 87 pounds of sugar; 8 pounds per day was used for six days; how much was left?

10. In a town there are 542 pupils in the primary grades, 316 in the intermediate grades, and 120 in the high school grades; how many pupils are there in all?

11. In two years a farmer raised 950 bushels of oats; the first year he raised 479 bushels; how many bushels did he raise the second year?

12. A merchant sold 9 boxes of soap, each box weighing 108 pounds; what was the weight of the 9 boxes?

112. Written Exercises.

Find sums:

1.	2.	3.	4.	5.	6.
21	42	54	19	37	63
32	36	27	15	26	27
43	19	33	17	15	13
54	65	28	76	18	9
17	12	29	23	42	45
28	18	11	38	51	26
65	27	40	26	19	32
49	51	66	33	63	18

113. Find remainders:

1. $150-75$	5. $111-56$	9. $127-49$
2. $160-89$	6. $127-59$	10. $162-73$
3. $173-75$	7. $138-69$	11. $121-46$
4. $191-56$	8. $142-73$	12. $118-39$

114. Find products:

1. 7×24	5. 6×24	9. 8×30	13. 8×62
2. 7×34	6. 6×34	10. 8×40	14. 8×70
3. 7×44	7. 6×44	11. 8×50	15. 8×72
4. 7×55	8. 6×55	12. 8×61	16. 8×18

115. Find quotients:

1. $126\div7$	4. $220\div5$	7. $200\div8$
2. $168\div8$	5. $230\div5$	8. $192\div8$
3. $198\div6$	6. $240\div6$	9. $154\div7$

116. Oral Questions.

1. If a boy can go 8 miles per hour on his bicycle, how many hours will it take him to go 72 miles?

2. If a man travels 9 miles per hour for 7 hours, how many miles does he go?

3. A man worked 54 hours, working 6 hours per day; how many days did he work?

4. A man worked 54 hours in 9 days; how many hours did he work per day?

5. A man worked 54 hours, working 9 hours per day; how many days did he work?

6. A man worked 54 hours in 6 days; how many hours did he work per day?

7. If a boy rides 6 miles per hour, how long will it take him to ride 108 miles?

117. Written and Oral Exercises.

$9\times 2=?$	$18\div 9=?$	$2\times 9=?$	$18\div 2=?$
$9\times 3=?$	$27\div 9=?$	$3\times 9=?$	$27\div 3=?$
$9\times 4=?$	$36\div 9=?$	$4\times 9=?$	$36\div 9=?$
$9\times 5=?$	$45\div 9=?$	$5\times 9=?$	$45\div 5=?$
$9\times 6=?$	$54\div 9=?$	$6\times 9=?$	$54\div 9=?$
$9\times 7=?$	$63\div 9=?$	$7\times 9=?$	$63\div 7=?$
$9\times 8=?$	$72\div 9=?$	$8\times 9=?$	$72\div 8=?$
$9\times 9=?$	$81\div 9=?$	$9\times 9=?$	$81\div 9=?$
$9\times 10=?$	$90\div 9=?$	$10\times 9=?$	$90\div 10=?$
$9\times 11=?$	$99\div 9=?$	$11\times 9=?$	$99\div 9=?$
$9\times 12=?$	$108\div 9=?$	$12\times 9=?$	$108\div 12=?$

118. Written Problems.

1. A bridge is 161 feet long; the river is 69 feet wide; how much greater is the length of the bridge than the width of the river?

2. Richard has 3 pigs; the smallest weighs 19 pounds, the second in size 31 pounds, and the largest 42 pounds; how much do the 3 pigs weigh?

3. A carpenter bought a hammer for 75 cents, and 4 pounds of nails at 5 cents per pound; how much for all?

4. A farmer paid some men $11 per day for 9 days' work; how much did he pay in all?

5. A mail-rider carries the mail daily 7 miles and returns; how many miles does he travel in 9 days?

6. Above the falls the river is 139 feet wide; below the falls its width is 221 feet; how much wider is it below than above the falls?

7. If 1 plowman can work a certain field of corn in 36 days, in how many days can 9 plowmen work it?

8. Lewis picked 135 pounds of cotton in 9 hours; how much was that per hour?

9. A flag has 6 white stripes and 7 red stripes; how many red stripes do 9 flags have? How many white stripes do 7 flags have? How many stripes do 8 flags have?

10. If a horse eats 9 ears of corn 3 times a day, how many ears does he eat in 3 days?

11. If a horse eats 8 ears of corn 3 times a day, how many ears does he eat in 7 days?

119. Written Exercises.

Find sums:

1.	2.	3.	4.	5.	6.
19	72	47	58	39	26
37	16	31	13	41	19
63	30	59	37	28	38
22	14	27	26	52	41
17	49	18	41	19	52
48	28	32	55	18	43
51	51	43	32	36	39
39	15	18	18	22	27
27	27	26	26	43	58
25	12	55	43	57	18

120. Find remainders:

1. $200 - 50$
2. $200 - 59$
3. $211 - 159$
4. $292 - 189$
5. $301 - 51$
6. $309 - 199$
7. $311 - 292$
8. $307 - 218$
9. $342 - 153$

121. Find products:

1. 2×119
2. 2×159
3. 3×107
4. 4×107
5. 4×150
6. 5×150
7. 6×125
8. 7×107
9. 6×150
10. 7×82
11. 8×73
12. 9×100

122. Find quotients:

1. $424 \div 4$
2. $525 \div 5$
3. $636 \div 6$
4. $287 \div 7$
5. $352 \div 8$
6. $450 \div 9$
7. $246 \div 6$
8. $336 \div 6$
9. $342 \div 6$

123. Oral Questions.

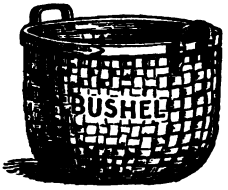
1. How much is paid for 2 quarts of milk at 5 cents a pint?

2. How much is paid for 1 bushel of potatoes at 20 cents a peck?

PECK

124. Dry Measure.

2 dry pints = 1 dry quart.
8 dry quarts = 1 peck.
4 pecks = 1 bushel.



3. A bushel and a peck of corn would fill a peck measure how many times?

4. A gallon and a quart of cider would fill a quart measure how many times? It would fill a pint measure how many times?

125. Written Problems.

1. If vinegar sells at 20 cents a quart, how much is paid for a gallon?

2. If peaches sell at 25 cents a peck, how much is paid for a bushel?

3. If a pint of ice-cream is worth 12 cents, how much are 3 quarts worth?

4. How many quarts make a bushel?

5. Find the cost of a peck of walnuts at 5 cents a quart.

126. Oral Questions.

1. How many tens are in 11? How many over?

2. How many hundreds in ten tens?

3. How many ones are in 1 hundred, 1 ten, and 1?

4. Of the number 111, how many units, or ones, will it take to make the 1 ten? How many tens will it take to make the 1 hundred?

5. $2+20+200=?$

6. In 222, the 2 in the middle is how many times the 2 on the right?

7. In 222, the 2 on the left is how many times the 2 on the right?

127. Written and Oral Exercises.

$10\times 2=?$	$2\times 10=?$	$90\div 10=?$
$10\times 3=?$	$3\times 10=?$	$100\div 10=?$
$10\times 4=?$	$4\times 10=?$	$110\div 10=?$
$10\times 5=?$	$5\times 10=?$	$120\div 10=?$
$10\times 6=?$	$6\times 10=?$	$150\div 10=?$
$10\times 7=?$	$7\times 10=?$	$130\div 10=?$
$10\times 8=?$	$8\times 10=?$	$140\div 10=?$
$10\times 9=?$	$9\times 10=?$	$160\div 10=?$
$10\times 10=?$	$10\times 10=?$	$180\div 10=?$
$10\times 11=?$	$11\times 10=?$	$190\div 10=?$
$10\times 12=?$	$12\times 10=?$	$170\div 10=?$

128. Written Problems.

1. March has 31 days, April 30, and May 31; how many days do the three spring months have?

2. A man hauled to town 10 cords of wood, which he sold for $50; how much did he get per cord?

3. A man sold 5 cords of pine wood at $4 per cord, and 5 cords of oak wood at $6 per cord; how much did he get for all?

4. In an orchard there are 5 rows of apple-trees, 6 rows of peach-trees, and 3 rows of pear-trees; in each row there are 10 trees; how many trees are there in the orchard?

5. If a river runs 6 miles per hour for 3 hours, and afterward runs 4 miles per hour for 7 hours, how far does it run in the 10 hours?

6. From a cistern containing 50 barrels of water, 3 barrels was used per day for 8 days; how many barrels remained?

7. There are 96 panels of fence around a lot, each panel being 8 feet long; how many feet around the lot?

8. Around another lot it is 840 feet; each panel of fence is 8 feet long; how many panels are in the fence?

9. If a laborer can build 9 panels of fence in 1 day, how many days will it take him to build 279 panels?

10. A grocer bought 9 dozen eggs at 15 cents per dozen, and sold them at 20 cents per dozen; how much did he gain?

129. Written Exercises.

	13	31	41	62	89
Multiply	10	10	10	10	10

Divide 1ø)13ø 10)250 10)350

130. Find quotients:

1. $400 \div 10$
2. $500 \div 10$
3. $650 \div 10$
4. $750 \div 10$
5. $999 \div 9$
6. $990 \div 9$
7. $981 \div 9$
8. $707 \div 7$
9. $714 \div 7$
10. $721 \div 7$
11. $832 \div 8$
12. $840 \div 8$

131. Find remainders:

1. $456 - 239$
2. $551 - 229$
3. $541 - 209$
4. $337 - 198$
5. $628 - 134$
6. $701 - 299$
7. $532 - 187$
8. $416 - 392$
9. $291 - 186$
10. $407 - 309$
11. $525 - 436$
12. $614 - 527$

132. Find sums:

1. $129 + 37 + 46 + 54 + 35 + 22$
2. $142 + 136 + 15 + 62 + 92 + 18$
3. $139 + 141 + 126 + 82 + 37 + 71$
4. $118 + 129 + 132 + 115 + 27 + 63$
5. $254 + 137 + 148 + 129 + 119 + 61$
6. $262 + 218 + 147 + 139 + 145 + 89$
7. $108 + 213 + 309 + 412 + 94$
8. $219 + 109 + 273 + 308 + 79$
9. $166 + 272 + 189 + 47 + 28$

133. Oral Questions.

1. In an orchard there are 10 rows, each row having 11 trees; how many trees are in the orchard? Is it 10 times 11 trees, or 11 times 10 rows? How many are 10 tens?

2. How many eggs are 10 dozen? Is it 10 times 12, or 12 times 10? $120 + 12 = ?$ $11 \times 12 = ?$

3. How many cents are 5 dimes? Is it 10 times 5, or is it 5 times 10? How many cents are in 11 nickels? Is it 11 times 5, or 5 times 11?

4. How many are 5 times 11? How many school-days are in 11 weeks? Is it 11 times 5, or 5 times 11?

5. How many are 6 times 11? How many work-days are in 11 weeks? Is it 6 times 11, or 11 times 6?

134. Written and Oral Exercises.

$11 \times 2 = ?$	$22 \div 11 = ?$	$2 \times 11 = ?$	$22 \div 2 = ?$
$11 \times 3 = ?$	$33 \div 11 = ?$	$3 \times 11 = ?$	$33 \div 11 = ?$
$11 \times 4 = ?$	$44 \div 11 = ?$	$4 \times 11 = ?$	$44 \div 4 = ?$
$11 \times 5 = ?$	$55 \div 11 = ?$	$5 \times 11 = ?$	$55 \div 11 = ?$
$11 \times 6 = ?$	$66 \div 11 = ?$	$6 \times 11 = ?$	$66 \div 6 = ?$
$11 \times 7 = ?$	$77 \div 11 = ?$	$7 \times 11 = ?$	$77 \div 11 = ?$
$11 \times 8 = ?$	$88 \div 11 \div ?$	$8 \times 11 = ?$	$88 \div 8 = ?$
$11 \times 9 = ?$	$99 \div 11 = ?$	$9 \times 11 = ?$	$99 \div 11 = ?$
$11 \times 10 = ?$	$110 \div 11 = ?$	$10 \times 11 = ?$	$110 \div 10 = ?$
$11 \times 11 = ?$	$121 \div 11 = ?$	$11 \times 11 = ?$	$121 \div 11 = ?$
$11 \times 12 = ?$	$132 \div 11 = ?$	$12 \times 11 = ?$	$132 \div 12 = ?$

135. Written Problems.

1. How many weeks are in 210 days?

2. How many work-days are in 24 weeks?

3. At $6 per week, how many weeks will it take to earn $72?

4. In a school there are 127 girls and 98 boys; how many pupils are there in the school?

5. If James can pick 125 pounds of cotton per day, how much can he pick in 6 days?

6. Two numbers added make 436; one number is 279; what is the other number?

7. How many sheep at $4 each can be bought for $144?

8. If 1 teaspoonful is 60 drops, how many drops are 9 teaspoonfuls?

9. How many girls' dresses of 9 yards each can be made from 279 yards of cloth?

10. A newsboy sold one day 75 papers, on the next two days 77 each, and on the fourth day 87; how many papers did he sell in the four days?

11. In one county are 12 towns, in another county 6 towns, and in a third county 8 towns; how many towns are in the three counties?

12. A farmer raised 40 bushels of corn per acre on 9 acres; how many bushels did the 9 acres yield?

13. For every 3 acres in a 60-acre field a farmer gathered a bale of cotton; how many from the whole field?

136. Written Exercises.

Find sums:

1.	2.	3.	4.	5.	6.
357	273	219	192	276	296
169	298	394	227	269	177
294	165	277	176	357	289
187	188	166	299	286	356
176	267	195	347	198	465

137. Find remainders:

1. $143-98$	2. $615-596$	3. $746-598$
4. $172-89$	5. $662-583$	6. $642-467$
7. $362-197$	8. $727-698$	9. $810-492$
10. $472-189$	11. $816-439$	12. $1234-862$

138. In 1234 the 1 means a thousand, the 2 means two hundreds, the 3 means three tens, and the 4 means four units.

139. Find results:

1. 10×91	2. $910\div10$	3. 7×121
4. 9×92	5. $1010\div10$	6. 8×103
7. 10×81	8. $2100\div10$	9. 9×101
10. 8×92	11. $3000\div10$	12. 9×102
13. 9×73	14. $3030\div10$	15. 9×113
16. 7×87	17. $3130\div10$	18. 8×117
19. 8×78	20. $4550\div10$	21. 7×127

140. Oral Questions.

1. If there are 12 hours of daylight in 1 day, how many hours of daylight are in 4 days? Is it 12 times 4, or 4 times 12?

2. How many quarts are in 12 gallons? Is it 12 times 4, or 4 times 12?

3. How many work-days are in 12 weeks? Is it 6 times 12, or 12 times 6? $72 \div 6 = ?$ $72 \div 12 = ?$

4. How many days are in 12 weeks? Is it 7 times 12, or 12 times 7? $84 \div 7 = ?$ $84 \div 12 = ?$

5. In 1 gallon there are 8 pints; how many pints are there in 12 gallons? Is it 8 times 12, or 12 times 8? $96 \div 8 = ?$ $96 \div 12 = ?$

6. In 1 foot there are 12 inches; how many inches are in 9 feet? Is it 9 times 12, or 12 times 9?

141. Written and Oral Exercises.

$12 \times 2 = ?$	$24 \div 12 = ?$	$2 \times 12 = ?$	$24 \div 12 = ?$
$12 \times 3 = ?$	$36 \div 12 = ?$	$3 \times 12 = ?$	$36 \div 3 = ?$
$12 \times 4 = ?$	$48 \div 12 = ?$	$4 \times 12 = ?$	$48 \div 12 = ?$
$12 \times 5 = ?$	$60 \div 12 = ?$	$5 \times 12 = ?$	$60 \div 5 = ?$
$12 \times 6 = ?$	$72 \div 12 = ?$	$6 \times 12 = ?$	$72 \div 12 = ?$
$12 \times 7 = ?$	$84 \div 12 = ?$	$7 \times 12 = ?$	$84 \div 7 = ?$
$12 \times 8 = ?$	$96 \div 12 = ?$	$8 \times 12 = ?$	$96 \div 12 = ?$
$12 \times 9 = ?$	$108 \div 12 = ?$	$9 \times 12 = ?$	$108 \div 9 = ?$
$12 \times 10 = ?$	$120 \div 12 = ?$	$10 \times 12 = ?$	$120 \div 12 = ?$
$12 \times 11 = ?$	$132 \div 12 = ?$	$11 \times 12 = ?$	$132 \div 11 = ?$
$12 \times 12 = ?$	$144 \div 12 = ?$	$12 \times 12 = ?$	$144 \div 12 = ?$

142. Linear Measure.

12 inches = 1 foot.

3 feet = 1 yard.

143. Oral Questions.

1. How many inches in half a foot?
2. How many pecks in half a bushel?
3. A yard and a foot are how many feet?
4. A foot and an inch are how many inches?
5. How many inches in 12 feet? In 9 feet?
6. How many quarts in 6 pecks? In 8 pecks?
7. How many pecks in 10 bushels?
8. How many bushels in 24 pecks?

144. Written Problems.

1. Find the cost of 10 bushels of peaches at 20 cents a peck.

2. If a boy steps 2 feet at a time how many steps will he take in 60 yards?

3. A staircase is 12 feet high, and has 24 steps; how many inches to the step? $12 \times 12 \div 24 = ?$

4. Find the sum: 160 feet, 19 feet, 30 feet, 8 feet 6 inches.

5. How many inches long is a pole 9 feet long?

6. How many feet in 360 inches? $360 \div 12 = ?$

145. Written Exercises.

Add columns:

Add across:

	1.	2.	3.	4.	5.	6.
7.	262 +	197 +	343 +	276 +	262 +	199 =
8.	419 +	276 +	198 +	195 +	957 +	278 =
9.	376 +	435 +	256 +	388 +	666 +	367 =
10.	295 +	576 +	765 +	479 +	385 +	555 =
11.	387 +	765 +	978 +	747 +	558 +	278 =
12.	185 +	278 +	345 +	276 +	189 +	421 =

146. Find remainders:

1.	1000 − 750	4.	750 − 125	7.	500 − 250
2.	1000 − 250	5.	150 − 75	8.	500 − 125
3.	750 − 250	6.	225 − 175	9.	350 − 175

147. Find products:

1.	212	2.	343	3.	357	4.	85	5.	99	6.	100
	10		10		10		10		10		10
7.	101	8.	121	9.	101	10.	121	11.	127	12.	233
	11		11		12		12		11		12
	1111		1331		1212		1452				

148. Find quotients:

1.	144 ÷ 12	4.	132 ÷ 11	7.	981 ÷ 9
2.	1440 ÷ 12	5.	1320 ÷ 11	8.	1008 ÷ 9
3.	1560 ÷ 12	6.	1430 ÷ 11	9.	714 ÷ 7

149. Multiplication Table.

1×2= 2	1×3= 3	1×4= 4	1×5= 5
2×2= 4	2×3= 6	2×4= 8	2×5=10
3×2= 6	3×3= 9	3×4=12	3×5=15
4×2= 8	4×3=12	4×4=16	4×5=20
5×2=10	5×3=15	5×4=20	5×5=25
6×2=12	6×3=18	6×4=24	6×5=30
7×2=14	7×3=21	7×4=28	7×5=35
8×2=16	8×3=24	8×4=32	8×5=40
9×2=18	9×3=27	9×4=36	9×5=45
10×2=20	10×3=30	10×4=40	10×5=50
11×2=22	11×3=33	11×4=44	11×5=55
12×2=24	12×3=36	12×4=48	12×5=60

1×6= 6	1×7= 7	1×8= 8	1×9= 9
2×6=12	2×7=14	2×8=16	2×9= 18
3×6=18	3×7=21	3×8=24	3×9= 27
4×6=24	4×7=28	4×8=32	4×9= 36
5×6=30	5×7=35	5×8=40	5×9= 45
6×6=36	6×7=42	6×8=48	6×9= 54
7×6=42	7×7=49	7×8=56	7×9= 63
8×6=48	8×7=56	8×8=64	8×9= 72
9×6=54	9×7=63	9×8=72	9×9= 81
10×6=60	10×7=70	10×8=80	10×9= 90
11×6=66	11×7=77	11×8=88	11×9= 99
12×6=72	12×7=84	12×8=96	12×9=108

1×10= 10	1×11= 11	1×12= 12
2×10= 20	2×11= 22	2×12= 24
3×10= 30	3×11= 33	3×12= 36
4×10= 40	4×11= 44	4×12= 48
5×10= 50	5×11= 55	5×12= 60
6×10= 60	6×11= 66	6×12= 72
7×10= 70	7×11= 77	7×12= 84
8×10= 80	8×11= 88	8×12= 96
9×10= 90	9×11= 99	9×12=108
10×10=100	10×11=110	10×12=120
11×10=110	11×11=121	11×12=132
12×10=120	12×11=132	12×12=144

CHAPTER III

NOTATION — MULTIPLICATION — LONG DIVISION — U. S. MONEY — REVIEWS — HALVES AND FOURTHS — SIMPLE MEASURES

NOTATION

150. Oral Questions.

1. How many ones, or units, are in ten?
2. How many units are in a hundred?
3. What is the number of cents in a dollar?
4. How many are eight units and two units?
5. How many are eight tens and two units?
6. How many figures do you use in writing one ten and one unit?
7. How many figures do you use in writing a hundred units? Two hundred units? Nine hundred ninety-nine units?
8. How many units are nine tens and nine units?
9. How many units are 10 tens?
10. How many units are 10 hundreds?

151. Written Exercises.

Write in words: 101; 303; 505; 606; 790; 810; 1001; 2101; 313; 519; 231; 190; 3500; 4500; 4501; 4510; 5000.

152. Written Exercises.

Multiply by 7:

1. Seven hundred one.
2. One thousand ninety.
3. Six hundred thirty-nine.
4. Four thousand forty-seven.
5. Eight hundred ninety-three.
6. Two thousand seven hundred eighty-two.

153. Divide by 8:

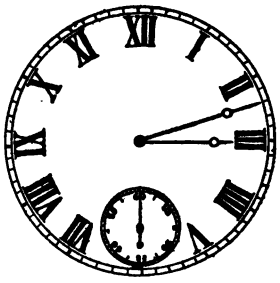
1. Seven thousand six hundred sixteen.
2. Nine thousand two hundred eight.
3. Three thousand twenty-four.
4. Four thousand four hundred eighty.
5. One thousand seven hundred four.

ROMAN NOTATION

154. Oral Questions.

1. What letters on the dial of the clock does the hour-hand point to at 12 o'clock?

2. At 1 o'clock? 2 o'clock? 5 o'clock? 6 o'clock? 7 o'clock? 9 o'clock? 10 o'clock?



1	2	3	4	5	6	7	8	9	10	11	12
I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
			IIII								

155. Oral Questions.

1. How many half-dollars make a dollar?
2. How many eggs are half a dozen?
3. What is half of 12? half of 10? half of 8? $\frac{1}{2} \times 6 = ?$
4. How many tens are in 20? What is the half of 20?
5. If half of Mary's age is 6 years, how old is she?
6. How many quarts are in a half-gallon of milk?
7. How many pecks are in a half-bushel of corn?
8. If a half-pound loaf of bread is worth 3 cents, how much is a pound loaf worth?
9. What will half a dozen pencils cost at 3 cents each?
10. From 36 subtract half of 4.

156. Oral Exercises. — Topical.

Give sums:

$20 + 10\frac{1}{2}$	$60 + 10\frac{1}{2}$	$10 + 5\frac{1}{2}$
$30 + 10\frac{1}{2}$	$70 + 10\frac{1}{2}$	$10 + 4\frac{1}{2}$
$40 + 10\frac{1}{2}$	$80 + 10\frac{1}{2}$	$19 + 9\frac{1}{2}$
$50 + 10\frac{1}{2}$	$90 + 10\frac{1}{2}$	$12 + 8\frac{1}{2}$

157. Give remainders:

$20\frac{1}{2} - 10$	$60\frac{1}{2} - 10$	$10\frac{1}{2} - 5$
$30\frac{1}{2} - 10$	$70\frac{1}{2} - 10$	$10\frac{1}{2} - 4$
$40\frac{1}{2} - 10$	$80\frac{1}{2} - 10$	$10\frac{1}{2} - 9$
$50\frac{1}{2} - 10$	$90\frac{1}{2} - 10$	$12\frac{1}{2} - 8$

158. Written Problems. — Miscellaneous.

1. A farmer has two fields; there are 100 acres in the large field, which is twice the size of the small field; how many acres are there in both fields?

2. A man plowed 6 acres one week, and 7 the next, and found that he had plowed half the field; how many acres were in the field?

3. Lucy had 100 pecans; after giving 3 girls 20 each, she gave her brother half the remainder; how many did she give her brother?

4. A man has 120 acres of farm-land, and half as much timber-land; how many acres in all?

5. Fred bought a top for 5 cents, a slate for 10 cents, and a ball for 15 cents, and found that he had spent half his money; how much did he have at first?

6. John picked 150 pounds of cotton per day; how much did he pick in 9 days?

7. Half of a number is 225; what is the number?

8. A man traded a horse valued at $95 for a cow valued at $36, and the difference in cash; how much money did he get?

9. An orchard has 9 rows of trees, 16 trees to the row; how many trees are in the orchard?

10. If it costs 4 cents to send by mail a book weighing half a pound, how much will it cost to send a book weighing 5 pounds?

159. Written Exercises.

Multiply 18 by 3; multiply 18 by 10; add the two products.

Multiply 18 by 13.

To multiply 18 by 13 is to multiply 18 by 3, and 18 by 10, and to add the two products.

$$\begin{array}{r} 18 \\ 13 \\ \hline 54 = 3\times 18 \\ 180 = 10\times 18 \\ \hline 234 = 13\times 18 \end{array}$$

160. Find products:

1. 11	2. 12	3. 13	4. 14	5. 21	6. 21
13	13	13	14	13	14
7. 22	8. 23	9. 24	10. 25	11. 26	12. 27
13	14	14	14	14	15

161. Find quotients:

1. $1\,287 \div 9$	5. $297 \div 9$	9. $1\,200 \div 8$
2. $1\,430 \div 10$	6. $1\,017 \div 9$	10. $1\,192 \div 8$
3. $1\,232 \div 8$	7. $1\,611 \div 9$	11. $1\,000 \div 8$
4. $1\,141 \div 7$	8. $3\,429 \div 9$	12. $993 \div 8$

$8)\overline{993}$

124 and 1 over;

The 1 over is written as part of the quotient; thus, $124\frac{1}{8}$.

The answer is read, One hundred twenty-four and one eighth. $\frac{1}{8}$ is called a fraction.

162. Oral Questions.

1. How many are twice 20, added to half of 20? How much is half of 20, subtracted from twice 20?

2. How much is half of 40? Half of 20? How many are $40 \div 2$? $20 \div 2 = ?$ $40 \div 4 = ?$

3. How many quarters make a dollar? How many quarters make a half-dollar?

4. How many cents are in a quarter of a dollar? How many cents are in half of a half-dollar?

5. John has 8 fingers, and one fourth as many thumbs; how many thumbs and fingers has he?

6. Lucy found 4 eggs, and Rose found one fourth as many; how many did they both find?

7. Tom has 4 marbles, and George has 3 times one fourth as many; how many has George?

8. How many dimes are in 20 cents? $\frac{1}{2}$ of $20 = ?$ How many nickels are in 20 cents? $\frac{1}{4}$ of $20 = ?$

163. Oral Exercises. — Topical.

Give sums:

$2\frac{1}{2}+2$	$12\frac{1}{2}+5$	$9+12\frac{1}{2}$
$3\frac{1}{2}+2$	$12\frac{1}{2}+6$	$11+12\frac{1}{2}$
$4\frac{1}{2}+2$	$12\frac{1}{2}+7$	$10+12\frac{1}{2}$

164. Give remainders:

$2\frac{1}{2}-2$	$12\frac{1}{2}-10$	$6\frac{1}{4}-6$
$3\frac{1}{2}-2$	$12\frac{1}{2}-11$	$6\frac{1}{4}-5$
$4\frac{1}{2}-2$	$12\frac{1}{2}-9$	$6\frac{1}{4}-4$

165. Written Problems. — Miscellaneous.

1. If Mary shares her 72 chestnuts equally with her 4 brothers and 4 sisters, how many chestnuts does she keep?

2. One end of a bridge stretches 50 feet over the land; the other end stretches 40 feet over the land; the middle part stretches 52 feet over the water; how long is the bridge?

3. In a journey from home John rode 36 miles per day for 5 days; how far from home was he at the end of the fifth day?

4. A farmer raised 180 bushels of wheat on 9 acres; how many bushels did he raise per acre (average)?

5. From a cistern containing 1 500 gallons of water, 35 gallons is used daily for 8 days; how many gallons remain?

6. How many full weeks are there in 365 days?

7. How many miles can a railroad train run in 12 hours, if it run 25 miles per hour?

8. At what rate per hour does a train run 150 miles in 6 hours?

9. If a cow gives each day 5 quarts of milk at night, and 6 quarts in the morning, how many quarts does she give in 4 days?

10. A merchant has three clerks; to one he pays 125 dollars per month, to another 95 dollars per month, and to the third 75 dollars per month; how much to the three?

166. Written Exercises.

Find sums:

1.	2.	3.	4.	5.	6.
329	721	614	472	719	827
486	618	853	308	692	763
535	427	298	499	543	641
272	918	709	287	428	555
681	399	316	615	347	478
287	556	525	876	295	394

167. Find remainders:

1. $1001 - 887$
2. $3012 - 2999$
3. $6517 - 3019$
4. $4123 - 607$
5. $3542 - 1996$
6. $5718 - 4929$
7. $4821 - 936$
8. $3185 - 2787$
9. $1020 - 978$
10. $3192 - 407$
11. $5603 - 814$
12. $2774 - 796$

168. Find products:

1. 13×343
2. 14×564
3. 24×184
4. 33×199
5. 24×414
6. 23×417
7. 15×532
8. 34×287
9. 35×209
10. 32×219
11. 41×317
12. 51×215

169. Find quotients:

1. $6512 \div 8$
2. $7422 \div 6$
3. $1326 \div 6$
4. $8154 \div 9$
5. $7014 \div 7$
6. $5400 \div 8$
7. $1407 \div 7$
8. $3400 \div 8$
9. $2010 \div 5$
10. $1233 \div 9$
11. $8400 \div 8$
12. $2107 \div 7$

UNITED STATES MONEY

170. Oral Questions.

1. What part of \$1 is 50 cents? What part of \$1 is \$.25? What part of \$.50 is \$.25?

2. Mary has \$.25, and Lucy has \$.25; what part of a dollar have they both?

3. How many cents is one fourth of \$.20? $\frac{1}{4}$ of \$.12?

4. If 2 boys share equally \$.50, what will each have? If 4 boys share equally \$1, what will each have?

5. A teacher bought 8 books at a quarter of a dollar each; how much did he pay?

6. A man paid \$.25 apiece for 6 packages of postal cards; how much did he pay for all?

171. \$.25 means twenty-five cents. \$1.25 means 1 dollar and 25 cents. The dot between dollars and cents is called the Decimal Point.

172. Written Exercises.

1. Write in figures two dollars and twenty-five cents.
2. Add \$22.50, \$32.50, \$42.50.
3. Subtract \$12.50 from \$18.75.
4. Multiply \$5.25 by 5.
5. Divide \$155.55 by 5.

173. Written Exercises. — Topical.

Find sums:

1.	2.	3.	4.	5.
$9.50	$6.25	$3.60	$2.90	$6.90
4.85	4.95	7.35	7.15	7.80
7.25	5.45	4.15	8.75	9.75
3.55	1.80	9.10	6.50	4.15
6.80	7.15	8.05	4.00	3.75
7.20	8.50	2.25	9.20	5.40
$.	$.	$.	$.	$.

174. Find remainders:

1. $2.50	2. $3.25	3. $4.15	4. $6.75	5. $8.20
1.55	1.75	3.95	2.95	8.15
6. $75.35	7. $36.50	8. $47.10	9. $51.05	10. $62.50
29.25	29.75	29.15	29.75	39.75

175. Find products:

1.	2.	3.	4.	5.
$499	$399	$308	$198	$127
10	20	30	40	60

Find quotients:

1.	2.	3.	4.
7)$42.35	9)$36.99	6)$42.60	8)$71.84
$.	$.	$.	$.

176. Written Problems.

1. A cotton-picker earned Monday \$.75, Tuesday \$.75, and Wednesday \$.75; how much in the three days?

2. How much rent is paid in 12 months for a house that rents at \$28 a month?

3. Mary has \$1.15, Lucy has \$.85, and Ida has \$1.05; how much do the three girls have?

4. Frank had \$12.75, and spent all but \$3.90; how much did he spend?

5. A farmer paid \$1 359 for land at \$9 per acre; how many acres did he buy?

6. A ranchman sold 39 head of cattle at \$19 a head; how much did he get for all?

7. Lewis bought half a dozen collars at \$.25 each, and a hat for \$2.50; what did he pay for the collars and the hat?

8. Mr. Johnson's farm is worth \$6 000; his stock and implements are worth \$1 915; how much are all worth?

177. Oral Questions.

1. How much more is \$1 than 50 cents? How many cents make a dollar? How much more is \$1 than \$.75? How much more is \$1 than \$.25? $100-25=?$

2. What is half of \$1.50? What is a fourth of \$3?

3. If 4 bushels of corn cost \$2.00, what is the cost of 1 bushel? of 2 bushels? of 3 bushels?

4. If 4 bushels of corn cost $2.00, what is the cost of half a bushel?

5. A man needs $5.00: he can earn $1.25 per day; in how many days can he earn the $5.00?

6. But he has to spend $1.00 per day; how much can he save in a day?

7. If he can save $.25 per day, in how many days can he save $1.00? In how many can he save $5.00?

8. If 1 pound of coffee costs $.25, what will 12 pounds cost? What will 6 pounds cost? 3 pounds?

9. If 10 pounds of coffee cost $2.50, what should 1 pound cost?

178. Written Exercises. — Topical.

Find products:

1. $789. × 9 = $.

2. $45.40 × 9 = $.

3. $615.95 × 8 = $.

4. $727.35 × 7 = $.

5. $175. × 32 = $ xxxx

6. $1.75 × 32 = $ xx.xx

7. $26.35 × 27 = $ xxx.xx

8. $28.25 × 72 = $.

9. $20.15 × 23 =

10. $1.45 × 25 =

11. $10.20 × 21 =

12. $16.20 × 18 =

179. Find quotients:

1.	2.	3.	4.
9)$7 101.	9)$408.60	8)$4 927.60	7)$5 091.45
$.	$.	$.	$.

5.	6.	7.	8.	9.	10.
4)500	4)$5.00	4)600	4)$6.	4)900	4)$9.

180. Find remainders:

1.	2.	3.	4.
$817.40	$320.05	$750.00	$650.
699.55	198.20	500.25	450.25

181. Oral Exercises.

1. A man has a square yard, 100 feet on each side; how far all around?

2. Another man has a yard that is 100 feet wide and 200 feet long; how far all around?

3. A square 3 inches to the side is how many inches all around?

4. A plank 120 inches long and 8 inches wide is how many inches all around?

5. A square field is 800 yards all around; how long is one side? 3 sides? 2 sides?

6. A room is 18 feet long and 20 feet wide; how many feet all around?

7. A square room is 88 feet all around; how long is each side?

182. Oral Problems. — Miscellaneous.

1. Fred's father weighs 160 pounds; Fred weighs half as much; how much does Fred weigh? How much do both weigh?

2. If there is in 1 newspaper one half of 16 pages, how many pages are in 9 such newspapers?

3. Mary had 12 bananas; Lucy bought half as many, and paid 12 cents for them; how much did she pay for each?

4. Mr. Brown bought 10 pounds of sugar, giving the dealer 5 cents per pound; how much did he pay? But the dealer said that the price was $5\frac{1}{2}$ cents per pound; Mr. Brown then paid the dealer $\frac{1}{2}$ cent more on every pound; how much did he pay the second time? How much did he pay in all?

5. A man bought 10 pounds of sugar at $5\frac{1}{2}$ cents per pound; how much did he pay? $10 \times 5 = ?$ 10 halves $= ?$

6. Three boys went fishing, and caught 36 perch; John caught half of them, Fred caught 8, and Harry caught all the others; how many did Harry catch?

7. A farmer had 40 acres in cotton; on half of it he made a bale to every 2 acres, and on the other half one fourth of a bale per acre; how many bales did the 40 acres produce?

8. Fred walked 2 hours at the rate of $2\frac{1}{2}$ miles per hour; how many miles did he walk?

9. What must be paid for 4 pairs of shoes at $\$2\frac{1}{2}$ per pair?

10. A horse trotted half an hour at the rate of 8 miles an hour, and walked half an hour at the rate of 4 miles an hour. How many miles did he go?

11. Mrs. Jones sold 4 ducks at $.50 each; how many dollars did she get? In 200 cents how many dollars?

12. Mrs. Brown sold 8 chickens at $.25 each; how many dollars did she get? $8 \times 25 = ?$

13. Lucy had 3 apples, which she divided equally between her 2 sisters; what did each get?

14. Six boys spent $.25 each; how much did all spend?

15. What will 6 dozen eggs cost at $.25 per dozen?

16. John swam across the river and back; in all he swam 150 feet; how wide is the river? What is half of 150? $150 \div 2 = ?$ $300 \div 4 = ?$

183. Written Problems. — Miscellaneous.

1. In one year a laborer worked 98 days on a cotton farm, 76 days getting cross-ties for a railroad, and 48 days clearing land. How many days did he work?

2. A flat car has on it 37 bales of cotton, averaging 478 pounds to the bale; what is the total weight?

3. A man bought a cow for $25; he paid 16 bushels of corn at $.50 per bushel, and the balance in money; how much cash did he pay?

4. A farmer sold 75 bushels of corn at 55 cents a bushel, and 62 bushels of wheat at 85 cents a bushel; how much did he get?

5. How much must be paid for 6 months' rent of a house which rents for $25 per month?

6. How many miles would a train run in 24 hours, if it run 24 miles per hour?

7. A horseman rode 26 miles per day the last 6 days in June, and 24 miles per day the first 3 days in July; how many miles did he ride in the 9 days?

8. A farmer hired two laborers; he gave one $1 per day, and the other $1.50 per day; how much did he pay both for 3 days?

9. John cut down 2 trees; from the first he got $4\frac{1}{2}$ loads of wood, and from the other $5\frac{1}{2}$ loads; how many loads from both?

10. If a man spends $.50 per day, how much does he spend in 2 weeks?

11. A farmer has 2 horses and 3 cows; he values the horses at $80 each, and the cows at half as much each; at how much does he value all?

12. A man whose salary is $100 a month pays $17.50 a month rent, $30 a month for groceries, and $40.50 for all other expenses; how much does he save in a month?

13. A farmer sold 88 bushels of corn at $.55 per bushel; how much did he receive?

14. What will it cost to compress 12 bales of cotton at $.50 per bale?

15. Add 129, 437, 658, 297, 376, 498, 577.

16. Add 717, 276, 853, 599, 658, 767, 919.

184. Written Exercises.

Find sums:

1. $225+325+62\frac{1}{2}$
2. $450+550+12\frac{1}{2}$
3. $575+675+37\frac{1}{2}$
4. $732+764+87\frac{1}{2}$
5. $1\,550+450+6\frac{1}{4}$
6. $2\,550+1\,450+18\frac{3}{4}$
7. $3\,750+2\,750+12\frac{1}{2}$
8. $3\,375+2\,225+37\frac{1}{2}$

185. Find remainders:

1. $1\,675-986$
2. $1\,010-342$
3. $2\,732-964$
4. $811-798$
5. $3\,323-519$
6. $7\,609-599$
7. $2\,184-395$
8. $1\,652-774$
9. $62\frac{1}{2}-37\frac{1}{2}$
10. $87\frac{1}{2}-37\frac{1}{2}$
11. $62\frac{1}{2}-12\frac{1}{2}$
12. $87\frac{1}{2}-12\frac{1}{2}$

186. Find products:

1. 25×40
2. 75×80
3. 65×90
4. 85×50
5. 16×44
6. 32×22
7. 64×11
8. 8×88
9. 12×128
10. 12×256
11. 12×512
12. $6\times1\,024$

187. Find quotients:

1. $\$305.60\div4$
2. $\$275.75\div5$
3. $\$120.24\div6$
4. $\$350.00\div7$
5. $\$1\,200.00\div8$
6. $\$70.04\div4$
7. $\$19.35\div9$
8. $\$1\,700.00\div5$
9. $\$63.50\div25$
10. $\$1\,050.72\div6$
11. $\$2\,538.41\div7$
12. $\$5\,381.12\div8$
13. $\$4\,322.25\div9$
14. $\$702.45\div9$
15. $\$1\,200.75\div25$
16. $\$1\,600.00\div40$
17. $\$2\,520.00\div12$
18. $\$1\,800.54\div9$

188. Time Measure.

60 seconds = 1 minute.
60 minutes = 1 hour.
24 hours = 1 day.
7 days = 1 week.

189. Oral Questions.

1. How many hours are in a day and night?

2. How many hours are there from 8 in the morning until noon?

3. How many minutes make half an hour?

4. How many minutes are an hour and a half?

5. If you walk a mile in 20 minutes, how long does it take to walk three miles?

6. How many minutes are an hour and a quarter?

7. How many hours are there in 2 days?

8. How many seconds are 2 minutes?

190. Written Problems.

1. How many minutes are in one day?

2. Find how many hours are in 2 weeks.

3. An hour is how many times 10 minutes?

4. If a man can run a mile in 10 minutes, how far can he run in 2 hours at the same rate? $2 \times 60 \div 10$.

5. How many full weeks are in 365 days? How many days over?

191. Oral Problems.

1. If 2 boys share equally 24 apples, what will each boy have?

2. If 2 boys share equally 25 apples, what will each boy have?

3. If a man works 12 hours each day, how many hours does he work in 6 days?

4. If a man can pick 15 pounds of cotton per hour, how much can he pick in half an hour?

5. A man bought 3 cows at $25 each, and sold them for $100; how much did he gain?

6. John bought 3 oranges at the rate of 20 cents a dozen; how much did he pay?

7. How much must be paid for 15 bushels of corn at $.50 per bushel? Is it 15 times $.50, or is it 50 times 15 bushels?

8. How much must be paid for 50 bushels of cotton-seed at $.15 per bushel? Is it 50 times $.15, or is it 15 times 50 bushels?

192. Oral Exercises.

Give results:

$4\times 2\frac{1}{2}$	$2\frac{1}{2}+2\frac{1}{2}$	$5-2\frac{1}{2}$
$6\times 2\frac{1}{2}$	$7\frac{1}{2}+2\frac{1}{2}$	$7\frac{1}{2}-5$
$8\times 2\frac{1}{2}$	$12\frac{1}{2}+2\frac{1}{2}$	$15-2\frac{1}{2}$
$10\times 2\frac{1}{2}$	$37\frac{1}{2}+2\frac{1}{2}$	$40-2\frac{1}{2}$
$20\times 2\frac{1}{2}$	$62\frac{1}{2}+2\frac{1}{2}$	$65-2\frac{1}{2}$

193. Written Problems.

1. From one thousand three hundred dollars, subtract three hundred dollars seventy-five cents.

2. A butcher sold 31 pounds of beef at $.12 per pound, and 40 pounds of pork at $.10 per pound; how much did he get for all?

3. Mr. Williams paid $12.35 for a railway ticket, and $2.50 for a berth in the sleeper; how much did he pay for both?

4. A girl buys a hat for $3.25, and a fan for $.60; she gives the salesman a five-dollar note; how much should she get back?

5. John drew 12 buckets of water 3 times each day for 21 days; how many buckets in all?

6. A farmer sold 37 bushels of corn at $.55 per bushel, and a load of hay for $12; how much did he receive for the corn and hay?

7. A man hired a horse for 4 weeks at $.25 per day, and paid out $3 for corn and oats, and $1 for hay; find the total expense.

8. Fred paid a man $1.35 for the use of a bicycle 9 days; how much per day?

9. A house was rented 8 months for $300; for how much was it rented per month?

10. Bought:

10 lb. sugar @ $.06		$.××
3 " coffee @ .25		.××
2 " tea @ .75		×.××
What was paid for all?		$2.85

LONG DIVISION

194.

Divide 624 by 12.

$$12\overline{)624}\quad 52$$

12 in 60, 5 times and 2 over.
12 in 24, 2 times and nothing over.

$$\begin{array}{r} 52 \\ 12\overline{)624} \\ 60 \\ \hline 24 \\ 24 \\ \hline \end{array}$$

12 in 62, 5 times.
Multiply 12 by 5, and write 60 under 62.
Subtract 60 from 62.
Bring down the 4.
12 in 24, 2 times.
Multiply 12 by 2, and write 24 under 24.

$$\begin{array}{r} 12 \\ 22\overline{)264} \\ 22 \\ \hline 44 \\ 44 \\ \hline \end{array} \qquad \begin{array}{r} 12 \\ 13\overline{)156} \\ 13 \\ \hline 26 \\ 26 \\ \hline \end{array} \qquad \begin{array}{r} 21\frac{5}{21} \\ 21\overline{)446} \\ 42 \\ \hline 26 \\ 21 \\ \hline 5 \end{array}$$

195. Written Exercises.

Find quotients:

1. $242 \div 22$
2. $264 \div 22$
3. $286 \div 21$
4. $253 \div 23$
5. $276 \div 23$
6. $299 \div 23$
7. $273 \div 13$
8. $154 \div 14$
9. $315 \div 15$
10. $252 \div 21$
11. $273 \div 21$
12. $307 \div 21$
13. $169 \div 13$
14. $168 \div 14$
15. $286 \div 13$
16. $254 \div 13$
17. $254 \div 14$
18. $254 \div 15$

196. Written Exercises.

Find products:

1. 25×25
2. 25×75
3. 25×125
4. 25×250
5. 24×48
6. 36×32
7. 18×64
8. 8×144
9. 27×35
10. 15×48
11. 34×29
12. 28×76

197. Find results:

1. 13×21
2. $273 \div 13$
3. $273 \div 21$
4. 13×22
5. $286 \div 22$
6. $286 \div 13$
7. 33×24
8. $792 \div 24$
9. $792 \div 33$
10. 23×24
11. $652 \div 24$
12. $652 \div 23$
13. 25×31
14. $775 \div 25$
15. $775 \div 31$
16. 25×33
17. $825 \div 33$
18. $825 \div 25$

198. Find results:

1. 14×21
2. $294 \div 21$
3. $294 \div 14$
4. 15×21
5. $315 \div 15$
6. 15×41
7. $615 \div 41$
8. $615 \div 15$
9. 15×51
10. $765 \div 51$
11. 22×33
12. $696 \div 33$
13. $696 \div 22$
14. 22×34
15. $718 \div 34$

199. Find results:

1. 16×21
2. $336 \div 16$
3. $336 \div 21$
4. 24×24
5. 24×25
6. $625 \div 25$
7. 19×41
8. $559 \div 41$
9. $359 \div 31$
10. 21×21
11. 22×22
12. $484 \div 22$
13. 24×32
14. $768 \div 32$
15. $768 \div 24$
16. 31×32
17. 32×33
18. $880 \div 41$

200. Oral Problems.

1. A man earns \$3 per day, and spends half he earns; how much does he save in 6 days?

2. If 4 girls share equally 200 chestnuts, how many does each girl have?

3. Frank had 16 marbles; he gave Fred half of them, and gave Tom one fourth of them; how many did he give Fred? How many did he give Tom? How many did he have left?

4. If 1 barrel of flour weighs 196 pounds, what do 2 barrels weigh?

5. How many soldiers, each getting $\frac{1}{2}$ a pound, will receive 196 pounds of flour?

6. If 4 bushels of corn cost \$2.00, what is the cost of half a bushel?

7. A man needs \$5.00: he can earn \$1.25 per day; in how many days can he earn the \$5.00?

8. What number must be subtracted from 100 to leave 25 remainder?

9. A man spent \$10$\frac{1}{2}$, and had \$10$\frac{1}{2}$ left; how much had he at first?

10. If you add 25 to a number, the sum will be 100; what is the number?

11. If you multiply a number by 6, the product will be 48; what is the number?

12. If you subtract 16 from a number, the remainder will be 84; what is the number?

201. Written Problems.

1. Add one thousand seventy, ten thousand seven, and four hundred nine.

2. A farmer raised 39 bales of cotton averaging 496 pounds. Find the weight of all.

3. If it takes 3 lb. of seed-cotton to make 1 pound of lint, how much lint will 1350 lb. seed-cotton make?

4. What is the sum of 19, 29, and 978?

5. A farmer raised 405 bu. oats on 9 acres, 136 bu. wheat on 8 acres, and 260 bu. corn on 10 acres; how many acres did he have in grain, and how many bushels of grain did he raise?

6. A square field requires 45 panels of fence to the side; how many rails will it take to fence the field, at 12 rails to the panel?

7. A bridge 537 feet long is floored with planks half a foot wide; how many planks are in the floor?

8. A card of buttons has 6 in a row, and 24 rows; how many buttons are on 12 such cards?

9. There is an orchard of 1620 trees, 36 trees to the row; how many rows are there?

10. For 18 days a ship averaged 144 miles per day; how many miles did she sail in all?

11. Four men shared equally 5 49-pound sacks of flour; what was each one's share?

12. At 6 cents for 1 pound, how much sugar can be bought for 132 cents?

202. Written Exercises.

Find sums:

1.	2.	3.	4.
$ 1.15	$ 2.20	$301.05	$ 91.15
3.05	12.45	178.10	87.75
8.25	92.90	316.90	34.20
9.60	100.75	715.20	85.00
11.35	68.20	499.80	100.00
99.80	75.15	266.65	39.95

203. Find remainders:

1. $ 81.74 − $69.95
2. $ 32.05 − $19.20
3. $ 75. − $50.25
4. $650. − $45.75
5. $100 − $ 85.15
6. $200 − $ 90.75
7. $300 − $175.50
8. $400 − $298.32

204. Find products:

1. 22 × $15.05
2. 33 × $16.15
3. 44 × $18.25
4. 37 × $20.95
5. 18 × $29.75
6. 27 × $94.15
7. 29 × $68.95
8. 32 × $48.20

205. Find quotients:

1. $ 93.15 ÷ 9
2. $188.70 ÷ 6
3. $636.35 ÷ 9
4. $384.20 ÷ 4
5. $246.82 ÷ 22
6. $258.29 ÷ 23
7. $258.52 ÷ 23
8. $400.25 ÷ 37

206. Oral Problems.

1. A bushel of wheat weighs 60 pounds; what is the weight of 3 bushels?

2. How many feet in 156 inches?

3. If each of 3 mules eats a bundle of fodder 3 times a day, how many bundles do they all eat in 3 days?

4. If a cow gives each day 5 quarts of milk at night, and 6 quarts in the morning, how many quarts does she give in a week?

5. If it takes $5\frac{1}{2}$ yards of barbed wire to weigh 1 pound, how many pounds do 11 yards weigh?

6. If a clock loses $1\frac{1}{2}$ minutes per hour, how many minutes will it lose in 24 hours?

7. If 55 pounds of sweet potatoes make 1 bushel, how many pounds make 4 bushels?

8. If 64 pounds of oats make 2 bushels, how many pounds make 1 bushel?

207. Written Exercises. — Topical.

How many times does \$1.32 contain \$.06?

\$.06)\$1.32
22 times

This is the same as dividing 132 cents by 6 cents.

Find quotients:

1. \$1.38 ÷ \$.06
2. \$1.47 ÷ \$.07
3. \$2.64 ÷ \$.05
4. \$3.60 ÷ \$.09
5. \$ 24.00 ÷ \$.12
6. \$ 33.00 ÷ \$.11
7. \$ 48.50 ÷ \$.05
8. \$100. ÷ \$.10

208. Written Problems.

1. There are 8800 yards in 5 miles; how many yards are there in 1 mile?

2. A bale of cotton brought $53.46 at $.11 per pound; what was the weight of the bale?

3. Subtract six hundred nine from two thousand one hundred ten.

4. From a cistern 34 gallons of water per day were drawn for watering stock, and 63 gallons for all other uses; how many gallons were drawn in 2 weeks?

5. Mrs. Willis bought flannel for 3 dresses of 9 yards each, at $.12 per yard; how much did she pay?

6. A railway ticket for 155 miles at $.03 per mile will cost how much?

7. A railway ticket at $.03 per mile costs $4.65; what is the distance?

8. When a man picks 1 350 pounds of cotton in 9 days, how much does he pick per day?

9. If double desks for a school cost $4.50 each, how much does it cost to seat 50 pupils?

10. A boy goes to school 5 weeks, and studies 5 hours per day on school days, and 2 hours per day on Saturdays; how many hours does he study in the 5 weeks?

11. How many hours of this week have gone by?

12. One hundred eighty-seven is how many times seventeen?

13. What number must be added to 907 to make 9007?

209. Written Exercises.

Find sums:

1.	2.	3.	4.
$2 109.37	$1 543.68	$1 234.56	$1 050.05
1 913.68	2 746.24	789.01	931.00
1 275.32	998.35	2 345.67	217.25
1 987.65	1 260.05	890.12	950.75
1 210.98	2 609.85	3 456.78	2 642.23
1 503.00	841.82	91.94	88.00
960.25	17.75	108.50	77.25

210. Find remainders:

1. $310.01 − $ 9.85
2. $692.50 − $18.75
3. $300.00 − $75.80
4. $201.25 − $53.60
5. $2 300.45 − $1 128.75
6. $1 947.75 − $ 988.80
7. $3 125.00 − $1 754.60
8. $1 750.00 − $ 818.25

211. Find products:

1. 28 × $216.52
2. 29 × $338.25
3. 28 × $319.60
4. 37 × $102.25
5. 38 × $203.45
6. 42 × $190.10
7. 36 × $225.25
8. 37 × $156.75

212. Find quotients:

1. $2 850.75 ÷ 25
2. $2 730.25 ÷ 25
3. $3 681.75 ÷ 25
4. $2 769.25 ÷ 25
5. $850.75 ÷ $.05
6. $730.62 ÷ $.09
7. $515.20 ÷ $.07
8. $384.40 ÷ $.08

213. Oral Problems.

1. If a dozen large fish-hooks cost \$.15, what ought 4 such hooks to cost?

2. If sweet milk sells at \$.10 per quart, and buttermilk at \$.05 per quart, how much must be paid for 5 quarts of sweet milk and 10 quarts of buttermilk?

3. Lucy bought postal cards for \$.15, and 5 two-cent stamps; how much did she pay?

4. If 10 eggs weigh 1 pound, how many pounds should 5 dozen weigh?

5. A 49-pound sack of flour is a quarter of a barrel; how many pounds make a barrel of flour?

6. If 49 lb. flour cost \$1.50, what should a bbl. cost?

7. When ice is selling at \$.01½ per pound, what will 10 pounds cost?

8. At \$.03 per mile for railway travel, for what distance will \$2.25 pay?

9. If it takes 1¼ pounds of soap each week for a family's washing, how many pounds will it take in 20 weeks?

10. At \$3.75 a pair, what must be paid for 10 pairs of shoes?

11. A boy sold 15 papers at 2 cents each, and 13 papers at 5 cents each; how much did he get for all?

12. What number is a quarter of seven times eight?

13. How many inches are in 3 yards?

14. At \$22.50 per acre, how much is paid for 100 acres of land?

214. Written Problems.

1. In 1 mile there are 1760 yards; how many feet are there in 1 mile?

2. If Frank lives half a mile from school, how many yards must he walk each week to go and come?

3. A physician made in 1 month 96 day-visits at $2 each, and 27 night-visits at $3 each; how much did he charge for all?

4. A cook prepares 3 meals a day for the week-days, and 2 meals Sundays; how many meals does she prepare in 7 weeks?

5. A fish-dealer shipped by express to a customer $4\frac{1}{2}$ bushels of oysters at $.50 per bushel; the express charge was $1.00; find the whole cost.

6. Find the weight of 49 bales of cotton averaging 465 pounds to the bale.

7. A ferryman ferried across the river 1 six-mule team for $.50, 2 single buggies at $.25 each, 3 horsemen at $.10 each, and 6 foot-passengers at $.05 each; how much for all?

8. A teamster loaded his wagon with

8 bu. meal, 48 lb. to the bushel
9 " corn, 56 " " " "
9 " wheat, 60 " " " "
10 " oats, 32 " " " "
2 bbl. flour, 196 lb. to the barrel.

What was the weight of his load?

215. Written Exercises.

Find sums:

1.	2.	3.	4.
$1 987.25	$2 014.10	$3 000.	$22.50
3 643.50	3 159.18	118.12	10.
2 918.75	1 627.72	279.05	18.93
876.05	2 992.	1 840.10	62.10
3 000.	310.75	655.75	13.25

216. Oral Exercises.

Give remainders:

$62\frac{1}{2} - 12\frac{1}{2}$	$87\frac{1}{2} - 25$	$100 - 12\frac{1}{2}$
$50 - 37\frac{1}{2}$	$37\frac{1}{2} - 12\frac{1}{2}$	$100 - 87\frac{1}{2}$
$75 - 37\frac{1}{2}$	$10 - 2\frac{1}{2}$	$100 - 37\frac{1}{2}$
$22\frac{1}{2} - 12\frac{1}{2}$	$12\frac{1}{2} - 6\frac{1}{4}$	$100 - 62\frac{1}{2}$

217. Give products:

$10 \times 12\frac{1}{2}$	$10 \times \$\ 6.25$	$8 \times \frac{1}{4} = ?$
$10 \times 37\frac{1}{2}$	$10 \times \$18.75$	$8 \times \frac{3}{4} = ?$
$10 \times 62\frac{1}{2}$	$10 \times \$62.50$	$12 \times \frac{1}{4} = ?$
$10 \times 87\frac{1}{2}$	$10 \times \$37.50$	$12 \times \frac{3}{4} = ?$

218. Written Exercises.

Find results:

1. $24 \times 216 \div 48$	5. $25 \times 40 \div 50$	9. $12\frac{1}{2} \div 6\frac{1}{4}$
2. $25 \times 105 \div 15$	6. $20 \times 50 \div 40$	10. $18\frac{3}{4} \div 6\frac{1}{4}$
3. $26 \times 77 \div 22$	7. $40 \times 50 \div 80$	11. $37\frac{1}{2} \div 12\frac{1}{2}$
4. $34 \times 33 \div 12$	8. $25 \times 50 \div 125$	12. $87\frac{1}{2} \div 12\frac{1}{2}$

219. Oral Questions.

1. How many minutes in one hour? in $1\frac{1}{4}$ hours?

2. If a train runs at a constant rate of 20 miles per hour, in how many minutes does it run 1 mile?

3. How many hours are there from 10 in the morning to 9 in the evening?

4. How long a time is it from 11 A.M. to 3:15 P.M.?

5. How long a time is it from 11 P.M. to 3:30 A.M.?

6. If a train runs 24 miles per hour, how many miles will it run from 11 A.M. to 1 P.M.?

7. If a man walks at the rate of 3 miles per hour, how far does he walk from 11 A.M. to 2 P.M.?

8. A man walking 4 miles per hour walked 6 miles by 1:30 P.M.; at what time did he start?

9. How many half-hours are there from 10 A.M. to 10 P.M.?

10. How many quarter-hours from 12 M. to 10 P.M.?

220. Number of Days in each Month.

Thirty days hath September,
April, June, and November;
All the rest have thirty-one
Except the second month alone,
Which hath but twenty-eight in fine
Till leap-year brings it twenty-nine.

221. Written Problems.

1. How many minutes are there in Christmas day?

2. If Mary's pulse beats 85 times to the minute, how many times does it beat in an hour?

3. Divide 219 + 56 by 208 − 197.

4. How many times does the minute-hand of the clock go round during January?

5. How many times does the hour-hand of the clock go round during a common year? (365 days)

6. A man bought two pairs of shoes at $1.50 a pair, a sack of salt for $ .90, and a saddle for $9; how much did he pay for all?

7. If each page of a book has 27 lines, how many lines are on 94 pages?

8. The stars rise 4 minutes earlier every night; in how many days will a star rise at 9 o'clock if it rises to-night at 10 o'clock?

9. A man walked 24 miles Monday, 23 miles Tuesday, and 25 miles Wednesday; how many miles did he average per day?

10. A train ran 484 miles in 22 hours; what was the average rate per hour?

11. A train ran 900 miles in 41 hours, stopping 5 hours within the time; what was the average speed while running?

12. How much must be paid for 17 sheep at $5.25 a head?

222. Written Exercises.

Find sums:

1. $327+543+879$
2. $761+894+217$
3. $498+309+666$
4. $592+728+650$
5. $1\,913+347+925$
6. $1\,806+735+462$
7. $1\,928+471+906$
8. $825+713+535$
9. $662+494+259$
10. $427+649+295$
11. $366+742+984$
12. $616+555+376$

223. Find remainders:

1. $\$180.32-\$175.75$
2. $\$216.15-\$\ 92.05$
3. $\$\ 50.\ -\$\ 12.75$
4. $\$157.25-\$\ 18.75$
5. $\$1\,000\ -\$750.$
6. $\$1\,500\ -\$750.$
7. $\$1\,750-\$\ 500$
8. $\$2\,500-\$1\,250$
9. $\$10-\$2.50$
10. $\$10-\$7.50$
11. $\$10-\$8.75$
12. $\$10-\$1.25$

224. Find products:

1. $18\times\$16.25$
2. $24\times\$40.50$
3. $36\times\$25.25$
4. $42\times\$17.75$
5. 25×25
6. 40×40
7. 50×50
8. 75×75
9. $40\times12\frac{1}{2}$
10. $80\times\ 6\frac{1}{4}$
11. $20\times37\frac{1}{2}$
12. $80\times12\frac{1}{2}$

225. Find results:

1. $17\times\ 99\div51$
2. $18\times102\div36$
3. $18\times124\div31$
4. $27\times\ 27\div81$
5. $15\times250\div25$
6. $30\times250\div25$
7. $40\times250\div25$
8. $60\times250\div75$
9. $\$18.75\div\$.05$
10. $\$66.96\div\$.06$
11. $\$28.\ \div\$.04$
12. $\$56.\ \div\$.08$

226. Oral Problems.

1. If a gallon of water weigh 10 pounds, how much would $4\frac{1}{2}$ gallons weigh?

2. If Mary steps 2 feet each time, how many yards does she walk in taking 3 steps?

3. If a pint of cream will make a cake of butter, how many such cakes will a quart and a half of cream make?

4. If a cow gives 7 quarts of milk twice a day, how many gallons will she give in 2 days?

5. What should $3\frac{1}{2}$ quarts of milk cost at 10 cents per quart?

6. Mrs. Jones filled 8 pans, each holding $1\frac{1}{2}$ quarts, with milk; how many gallons did the pans hold?

7. If you divide a number by 16 the quotient will be 6; what is the number?

8. What is the cost of a bushel of potatoes when \$250 is paid for 100 bushels?

9. How many pounds of rice, at 6 cents a pound, can be bought for \$18?

10. When the Fourth of July comes on Friday, what day of the week is June 30?

11. A man walking 4 miles an hour walked 6 miles by 1 : 30 P. M. At what time did he start?

12. A man walking 4 miles an hour started at 11 : 45 A. M. What time was it when he had walked 5 miles?

13. If a man earns 20 cents an hour, how much does he earn from 10 A. M. to 3 : 30 P. M.?

227. Written Problems.

1. A farmer harvested 686 bushels of oats, 799 bushels of corn, and 347 bushels of wheat. Find the total number of bushels.

2. If a field of 21 acres produces 441 bushels of corn, what is the average yield per acre?

3. John worked 16 days for a dollar and a quarter per day. How much did he earn?

4. A man paid $6.60 for 20 pounds of wool. Find the price per pound.

5. Subtract three thousand fifty-nine from five thousand two hundred seven.

6. When strawberries are selling at $7\frac{1}{2}$ cents a quart, what should be paid for 20 quarts?

7. An orchard has 14 rows of trees. One of the rows is short and has 19 trees. The 13 rows have 48 trees to the row. How many trees in the orchard?

8. A man buys 12 pounds of sugar at 6 cents a pound, and 3 pounds of coffee at 33 cents a pound. How much change must he receive out of $2?

9. Add two hundred fifty-three, seventy-nine, eight hundred nine, and seventeen.

10. A farmer sold 27 bushels of sweet potatoes at $.65 per bushel; how much did he get?

11. A cabinet-maker paid out $4.50 for wood and other expenses, and made a desk, which he sold for $27.25. How much did he get for his labor?

228. Oral Exercises.

Give sums:

75 + 25	18 + 12	29 + 21	250 + 250
40 + 35	28 + 12	60 + 40	375 + 125
50 + 25	38 + 12	37 + 13	225 + 275
25 + 25	16 + 14	27 + 23	600 + 400
25 + 15	26 + 24	60 + 15	500 + 250

229. Give remainders:

100 − 75	50 − 25	75 − 45	500 − 250
100 − 25	50 − 15	75 − 50	500 − 125
100 − 40	50 − 22	75 − 40	500 − 375
100 − 30	50 − 18	75 − 35	500 − 225
100 − 60	50 − 12	75 − 37	500 − 275

230. Give products:

8 × 25	3 × 25	3 × 75	7 × 75
8 × 50	7 × 25	5 × 75	9 × 75
6 × 25	9 × 25	8 × 75	11 × 75
6 × 50	11 × 25	4 × 75	12 × 75
6 × 75	12 × 25	6 × 75	4 × 125

231. Give quotients:

100 ÷ 25	300 ÷ 50	300 ÷ 75	10 ÷ $2\frac{1}{2}$
200 ÷ 25	600 ÷ 50	600 ÷ 75	20 ÷ $2\frac{1}{2}$
300 ÷ 25	700 ÷ 50	750 ÷ 75	40 ÷ $2\frac{1}{2}$
400 ÷ 25	900 ÷ 50	900 ÷ 75	50 ÷ $2\frac{1}{2}$
500 ÷ 25	1000 ÷ 50	1200 ÷ 75	100 ÷ $2\frac{1}{2}$

232. Written Problems.

1. A man's expenses in two weeks were, for the first week $24.50, and for the second week $31.50; what were his average daily expenses?

2. A farmer, with all his plows, broke a field of 156 acres in 13 days; how many acres per day did he average?

3. A ship sailed 3 000 miles across the ocean in 25 days; what was her average rate per day?

4. A merchant sold 2 997 barrels of flour in 27 days; what were his average daily sales?

5. A farmer raised on 13 acres 5 551 pounds of seed-cotton; find the average yield.

6. A farmer hauled to market 5 bales of cotton weighing as follows: #1. 456 — #2. 444 — #3. 490 — #4. 410 — #5. 450. Find the average weight.

7. A farmer raised on a field of 28 acres, part good and part bad land, 364 bushels of wheat; what was the average yield?

8. A cotton-weigher weighed 16 bales of cotton as follows:

1. 447 — # 2. 515 — # 3. 508 — # 4. 521 —
5. 498 — # 6. 416 — # 7. 550 — # 8. 501 —
9. 510 — #10. 542 — #11. 476 — #12. 507 —
#13. 503 — #14. 499 — #15. 535 — #16. 488.

What was the average weight?

9. What would 150 bushels of peaches cost at $1½ per bushel?

233. Oral Questions.

1. How many days are in 3 weeks 4 days?

2. How many are 16 twos? 20 threes? 40 fives?

3. How many units are in 9×8? in 9×12? in 8×7?

4. How many days are in December?

5. A man sold $2\frac{1}{2}$ gallons of milk; how many quarts did he sell? How many pints?

6. If you buy a bushel of peaches at 30 cents a peck, how much do you pay?

7. If you buy a peck of chestnuts at 10 cents a quart, how much do you pay?

8. How many tens are in one thousand ninety?

9. Name all the silver coins.

10. Three feet six inches are how many inches?

11. Four yards two feet are how many feet?

12. In an hour and a half, there are how many minutes?

13. In a minute and a half, there are how many seconds?

14. In a day and a half, there are how many hours?

15. In a year and a half, there are how many months?

16. In a dollar and three quarters, there are how many cents?

17. If you pay $\$2\frac{1}{2}$ for books at a quarter of a dollar apiece, how many books do you get?

18. What is the answer called in Addition? in Subtraction? in Multiplication? in Division?

CHAPTER IV

NOTATION — THE FUNDAMENTAL OPERATIONS — HALVES AND FOURTHS — SIMPLE MEASURES — SQUARES AND RECTANGLES — REVIEWS

NOTATION

234. Oral Questions.

1. How many cents are there in 1 dime and 1 cent?
2. How many cents are there in 1 dollar and 1 cent?
3. How many dimes are there in 1 dollar?
4. How many tens are there in one hundred units?
5. How many units are in 10 tens and 1 unit?
6. How many hundreds make a thousand?
7. How many tens make a hundred units?
8. How many units are in the smallest number that can be shown with four figures? in the largest number that can be shown with three figures?

235. Ten units make one ten.
Ten tens make one hundred.
Ten hundreds make one thousand.
Ten thousands make one ten-thousand.
Ten ten-thousands make one hundred-thousand.
Ten hundred-thousands make one million.

236.

1. Write in words 1 001; 2 010; 4 101; 5 110.
2. Write in words 560; 506; 5 006; 5 060.
3. Write in words 2 102; 1 021; 1 012; 2 201.

237. Roman Notation.

30.	40.	50.	60.	70.	80.	90.	100.
XXX	XL	L	LX	LXX	LXXX	XC	C

Write in Roman: 32; 43; 54; 65; 76; 88; 97.

238. Read:

1 111	4 310	7 710	8 037
2 109	5 552	7 909	8 220
2 301	5 940	7 826	9 190

239. Write in figures:

One thousand twenty.
One thousand thirty-one.
One thousand forty-two.
One thousand fifty-three.
One thousand sixty-four.
One thousand seventy-five.
One thousand eighty-eight.
One thousand ninety-nine.
Two thousand ninety.
Three thousand eleven.
Three thousand ninety-nine.
Four thousand one.
Five thousand seventeen.
Six thousand fifty-five.
Six thousand ninety-two.
Six thousand one.
Six thousand twenty.
Seven thousand eleven.
Seven thousand thirty.
Eight thousand ten.
Eight thousand one.
Eighty thousand seventy.
Nine thousand nine.
Nine thousand ninety.

ADDITION

240. Oral Problems.

1. Mr. Smith sold 8 pounds of sugar to one customer, and 9 pounds to another; how many pounds did he sell to the two?

2. A foot-rule is 12 inches long; a yardstick is 24 inches longer; how many inches long is a yardstick?

3. In one week a cow gave 21 gallons of milk; the next week she gave 18 gallons; how many gallons did she give in the two weeks?

4. The first week of school there were present 23 girls and 24 boys; how many pupils?

5. A fruit-dealer sold to one boy 8 oranges, to another 3 oranges, and to another 5 oranges; how many oranges did the three boys buy?

6. Henry lives 12 blocks east of the post-office, and Fred lives 14 blocks west of the post-office; how many blocks from Henry's to Fred's?

7. James has 17 marbles; if he should buy 12 more, how many would he then have?

241. In Addition we find the number of units in two or more numbers.

The whole number of units in two or more numbers is called their Sum.

242. Oral Drills.

1. How many are $2+2+2+2+2$?
2. How many are $3+3+3+3+3$?
3. Begin with 2 and add by twos to 24.
4. Begin with 3 and add by threes to 36.
5. Begin with 4 and add by fours to 48.
6. Begin with 5 and add by fives to 60.
7. Begin with 6 and add by sixes to 72.
8. Begin with 7 and add by sevens to 84.
9. Begin with 8 and add by eights to 96.
10. Begin with 9 and add by nines to 108.

243. Tell the sums:

7	17	27	37	47	57	67	77
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
17	27	37	47	57	67	77	87
18	28	38	48	58	68	78	88
5	5	5	5	5	5	5	5
28	38	48	58	68	78	88	98
9	9	9	9	9	9	9	9
8	8	8	8	8	8	8	8
26	36	46	56	66	76	86	96

244. Tell the sums:

29	39	49	59	69	79	89	99
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
29	39	49	59	69	79	89	99
27	37	47	57	67	77	87	97
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9
16	26	36	46	56	66	76	86
18	28	38	48	58	68	78	88
8	8	8	8	8	8	8	8

245. Add 174, 863, and 295.

EXPLANATION.

I. Write the figures in columns of units, tens, and hundreds.

II. Begin with the units' column, thus: 5, 8, 12: 12 units. The 12 units are 1 ten and 2 units.

III. Write 2 under the units' column; then to the tens' column add the 1 ten taken from the 12 units, thus: 1, 10, 16, 23 : 23 tens. The 23 tens are 2 hundreds and 3 tens.

IV. Write 3 under the tens' column; then to the column of hundreds add the 2 hundreds taken from the 23 tens, thus: 2, 4, 12, 13 : 13 hundreds. The 13 hundreds are 1 thousand and 3 hundreds.

V. Write 3 under the hundreds' column, and 1 to the left in the thousands' place.

174
863
295
1332

246. Written Problems.

1. A farmer has five fields; in the first there are 37 acres; in the second, 48 acres; in the third, 51 acres; in the fourth, 79 acres; and in the fifth, 160 acres; how many acres in the five fields?

2. Add three hundred one, seven hundred seventy, and five hundred twenty-six.

3. A farmer paid for a plow $12, for a cart $27, and for a wagon $78. How much did he pay in all?

4. What is the number that is 45 greater than 72?

5. On one shelf are 42 books, on a second shelf 51 books, and on a third shelf, 49 books. How many books are on the three shelves?

6. John picked cotton six days: Monday, 127 pounds; Tuesday, 134 pounds; Wednesday, 135 pounds; Thursday, 152 pounds; Friday, 143 pounds; Saturday, 76 pounds. How many pounds in all?

7. An orchard has 37 peach-trees, 28 apple-trees, 14 pear-trees, and 79 of other kinds of fruit-trees. How many trees in the orchard?

8. What is the sum of 19, 29, 978?

9. A steamer towed 5 barges loaded with corn: in the first, 50 390 bushels; in the second, 39 367 bushels; in the third, 47 219 bushels; in the fourth, 49 597 bushels; in the fifth, 42 346 bushels; how many bushels in all?

247. **Oral Exercises.**

Tell sums at sight:

30+20	50+50	100+50
20+40	40+60	40+70
40+30	20+70	50+60
50+20	30+70	70+50
30+50	10+80	80+30
30+60	20+60	60+70
50+40	40+40	30+90

248. **Written Exercises.**

Find the sums:

1. 23+207+165
2. 68+ 30+206
3. 42+198+650
4. 88+ 72+107
5. 49+166+315
6. 243+872+109
7. 631+217+ 56
8. 204+319+ 97
9. 66+178+349
10. 78+387+496

249. Find the sums:

1.	2.	3.	4.
807	514	349	717
213	726	217	632
682	839	638	426
754	217	413	593
310	656	317	208
101	312	427	266
612	319	702	387

SUBTRACTION

250. Oral Problems.

1. Mary had 7 peaches, and gave away all but 2; how many peaches did she give away?

2. A newsboy had 10 papers, and sold all but 2; how many did he sell?

3. A drover had 400 hogs, and sold all but 100; how many did he sell?

4. Frank paid 80 dollars for a bicycle, and sold it for 60 dollars; how much did he lose?

5. Of the 90 pupils in school 40 are boys; how many girls?

6. How many more days are there in January than in Christmas week?

7. What is the difference between the values of a 25-cent piece and a 50-cent piece?

8. How much less than 16 dollars is 7 dollars?

9. If James had 9 more turkeys he would have 17; how many turkeys has he?

251. In *Subtraction* we find the difference between two numbers.

The number to be lessened is called the *Minuend.*

The number to be subtracted is called the *Subtrahend.*

The result obtained is called the *Difference* or *Remainder.*

The sign of *Subtraction* (—) is read *minus.*

252. Written Problems.

1. Subtract

	9	8	9	7	44	87
	5	4	6	3	22	53

2. Mr. Jones has 40 acres in wheat and 56 acres in corn; how many more acres has he in corn than in wheat?

3. What is the difference between the length of a railroad that is 879 miles long, and the length of another railroad 358 miles long?

4. From a herd of 938 head of cattle Mr. Franklin shipped 417 head to Chicago; how many cattle remained in the herd?

5. A farmer's crop of corn was 786 bushels. He kept 520 bushels for his own use, and sold the rest. How many bushels did he sell?

6. Find the difference between 362 and 787.

7. A boy had \$3.75, and spent \$2.25. How much did he have left?

8. From one million nine hundred eighty-seven thousand six hundred sixty-two, subtract five hundred twenty thousand two hundred one.

9. What number must be added to 3 265 to make 6 596?

10. What number subtracted from 76 982 will leave 45 901?

11. Find the difference in pounds between a cargo weighing 399 597 lb., and another weighing 287 163 lb.

253. Oral Drills.

Subtract:

1. By twos from 24 to 2
2. By threes from 36 to 3
3. By fours from 48 to 4
4. By fives from 60 to 5
5. By sixes from 72 to 6
6. By sevens from 84 to 7
7. By eights from 96 to 8
8. By nines from 108 to 9

254. Tell the remainders:

16	36	26	46	66	86	76	96	17
7	7	7	7	7	7	7	7	8
37	57	27	47	87	97	77	13	33
8	8	8	8	8	8	8	6	6
63	53	43	73	83	93	24	34	54
6	6	6	6	6	6	9	9	9
74	44	84	94	64	11	21	71	61
9	9	9	9	9	4	4	4	4
81	91	31	41	27	47	67	57	37	77
4	4	4	4	9	9	9	9	9	9
87	97	25	35	55	75	95	85	65
9	9	8	8	8	8	8	8	8
45	24	44	34	54	74	64	94	84
8	7	7	7	7	7	7	7	7

255. Written Exercises.

Subtract 1 437 from 2 356.

EXPLANATION.

I. From the 6 units, the 7 units cannot be subtracted; changing into units 1 ten of the 5 tens of the minuend, the units of the minuend become 16, and the tens of the minuend become 4. Subtract 7 units from 16 units, and place the difference, 9 units, below.

2 356	Minuend.
1 437	Subtrahend.
919	Remainder.

II. Subtract the 3 tens of the subtrahend from the 4 tens of the minuend, and place the difference, 1 ten, below.

III. From 3 hundreds, 4 hundreds cannot be subtracted; changing into hundreds 1 thousand of the 2 thousands of the minuend, the hundreds of the minuend become 13, and the thousands of the minuend become 1. Subtract 4 hundreds from 13 hundreds, and place the difference, 9 hundreds, below.

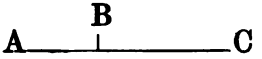
IV. Subtract the 1 thousand of the subtrahend from the one thousand of the minuend, and nought remains.

256. Find remainders:

1. 337 193	2. 462 159	3. 541 238	4. 1 652 981	5. 447 352	6. 1 516 734
7. 350 149	8. 7 642 1 939	9. 5 293 1 968	10. 5 171 3 929	11. 4 265 3 947	12. 6 041 3 827
13. 5 182 4 917	14. 6 243 5 716	15. 6 741 2 832	16. 5 409 3 216	17. 2 470 1 666	18. 4 271 1 758
19. 3 261 1 656	20. 5 192 3 726	21. 3 927 2 867	22. 4 513 3 907	23. 4 122 3 919	24. 4 122 3 929
25. 4 122 3 939	26. 5 000 4 900	27. 5 000 4 990	28. 5 000 3 990	29. 5 000 3 999	30. 5 000 3 888

257. Written Problems.

1. From A to C the distance is 406 miles; from B to C the distance is 239 miles. What is the distance from A to B?



2. John must have 1 000 pounds of cotton picked by Saturday night. By Friday night he has picked 836 pounds. How much must he pick on Saturday?

3. A girl raised 127 chickens and sold 93 of them. How many were left?

4. Two bales of cotton weigh 1 000 pounds. One weighs 509 pounds. Find the weight of the other bale.

5. On Thursday Lewis planted 103 rows of corn. In the forenoon he planted 59 rows; how many in the afternoon?

6. Subtract one thousand nine hundred nine from two thousand.

7. A man paid \$136 for a horse, and sold him for \$155. How much did he gain?

8. From one thousand, subtract each of the following numbers: (1) 301; (2) 907; (3) 896; (4) 263; (5) 759; (6) 917; (7) 49.

9. Find the greatest number of the following ten numbers, and from it subtract each of the smaller numbers: 49, 101, 816, 342, 271, 66, 89, 349, 701, 299.

10. At the end of the first year a merchant had gained \$1 346; at the end of the second year he had gained \$3 040; how much was his profit the second year?

258. Written Exercises.

Find the remainders:

1. 1 001 − 273	2. 6 507 − 5 928	3. 3 621 − 1 998	4. 1 920 − 877
5. 1 650 − 786	6. 1 703 − 295	7. 1 822 − 927	8. 2 009 − 1 908
9. 16 431 − 8 294	10. 10 811 − 2 792	11. 7 563 − 684	12. 10 004 − 9 095

259. Find the missing numbers:

1. 801 + ____ = 1 009	2. 716 + ____ = 5 403	3. 9 001 + ____ = 10 900	4. 7 683 + ____ = 10 271

260. Copy and complete the following:

1. 1 820 − 534 =	11. 2 007 − 669 =
2. 1 082 − 917 =	12. 1 090 − 696 =
3. 726 − 537 =	13. 3 011 − 784 =
4. 629 − 439 =	14. 2 107 − 619 =
5. 801 − 263 =	15. 3 213 − 847 =
6. 1 827 − 1 719 =	16. 1 672 − 1 594 =
7. 3 010 − 491 =	17. 1 024 − 865 =
8. 761 − 582 =	18. 2 740 − 1 951 =
9. 1 430 − 809 =	19. 3 133 − 2 665 =
10. 1 901 − 756 =	20. 1 873 − 924 =

261. Oral Problems.

1. Alice had 17 roses; she gave 3 to her teacher, and sent 5 to a sick friend; how many did she then have?

2. A miner made \$11 one week and \$10 the next week; he spent all but \$5; how much did he spend?

3. A fisherman caught one morning 9 trout, and in the evening 7; he sold all but 4; how many did he sell? $9+7-4=?$

4. If 13 is subtracted from the sum of 9 and 12, what is the remainder? $9+12-13=?$

5. To the sum of 6 and 7 add the difference between 25 and 31. $6+7+(31-25)=?$

6. Henry read 100 pages in his book in three days; Monday he read 42 pages, and Tuesday 28 pages; how many pages did he read the third day?

262. Written Exercises.

1. $18+2-3=$
2. $19+4-4=$
3. $21+6-8=$
4. $32+5-9=$
5. $43+7-6=$
6. $54+9-8=$
7. $67+4-9=$
8. $86+5-7=$
9. $79+9-4=$
10. $93+8-4=$
11. $40+51-9=$
12. $50+63-8=$
13. $60+72-7=$
14. $15+16-10=$
15. $16+17-11=$
16. $26+15-12=$
17. $45+16-13=$
18. $57+19-20=$
19. $68+17-18=$
20. $59+27-19=$

263. Written Problems.

1. In a field there are 42 acres, in a second 27 acres, and in a third 47 acres. How many more acres are in the first and second than in the third?

2. A lady bought a bonnet for \$6, and a belt for \$1.50. How much change did she receive from a ten-dollar note?

3. A certain train ran 100 miles in three hours. The first hour it ran 35 miles, the second hour 27 miles, and how many miles in the third hour?

4. Subtract one hundred nine from the sum of eighty-seven and thirty-three. $(87+33)-109=?$

5. Subtract the sum of eighty-one and forty-four from two hundred one. $201-(81+44)=?$

6. Three bales of cotton weigh 1 491 pounds. One weighs 487 pounds, another 509 pounds, and the third how much?

7. A farmer had \$181; he spent \$36 for tools, paid a debt of \$43, and had how much left?

8. Three numbers added make 707; one of the numbers is 39, another 99; find the third number.

9. What number added to $196+203$ makes the sum 1 000?

10. John bought a geography for 90 cents, a slate for 15 cents, and a dictionary for 50 cents. Find what he had left out of five dollars.

11. A man paid for two lots \$360, and \$270. He sold both together for \$595. How much did he lose?

264. Written Exercises.

Find results:

1. $44+88-97=$
2. $102+109-86=$
3. $429+321-503=$
4. $216+316-409=$
5. $176+55-88=$
6. $262+39-109=$
7. $707+104-628=$
8. $421+383-506=$

265. Find results:

1. $902-(66+40)=$
2. $871-(56+82)=$
3. $752-(43+53)=$
4. $217-(98+41)=$
5. $1\,701-(328+41)=$
6. $1\,522-(762+77)=$
7. $1\,930-(876+82)=$
8. $2\,001-(988+94)=$

266. Find remainders:

1. 47 019 38 137	2. 62 167 28 586	3. 51 712 32 648	4. 26 005 21 812
5. 98 713 62 987	6. 47 062 39 173	7. 62 801 13 192	8. 67 702 27 812
9. 72 637 63 718	10. 66 008 19 126	11. 33 080 26 911	12. 72 690 63 781
13. 61 432 52 543	14. 81 615 79 837	15. 67 123 48 234	16. 52 030 47 141
17. 35 231 30 989	18. 62 601 39 106	19. 54 502 37 814	20. 35 915 26 131

267. Oral Problems.

1. Lucy owed a dollar. After she paid 60 cents and 25 cents, how much did she owe?

2. A farmer bought a poor horse for $28, kept him in a good pasture and cared for him till he was fat, and sold him for $75; how much did he gain?

3. John's kite-string is 175 yards long, and Henry's is 140 yards shorter than John's. How much longer is John's than Henry's?

4. Mary has one doll that cost 65 cents, and another doll that cost 20 cents less. How much did both cost?

5. A dollar will pay for 20 cents' worth of paper, 10 cents' worth of envelopes, and how many one-cent stamps?

6. Mary is eight years old: the difference between her age and John's age is nine years. How old is John?

7. If you add eleven quarts of berries to those already there, you will have 19 quarts in the basket. How many quarts of berries are in the basket now?

8. A wagon and two horses on the scales weighed 2 800 pounds. The wagon by itself weighed 900 pounds; how much did the horses weigh?

9. From what number can you take six and then seven and leave eleven?

10. What number is it to which you may add six and then seven and make nineteen?

268. Written Problems.

1. Your salary is $1 500 a year. You pay $240 rent, $375 for groceries and fuel, $259 for clothing, and $418 for all other expenses. How much do you save?

2. You travel 986 miles in three days; the first day you go 437 miles, the second 190 miles, and how far the third day?

3. A merchant buys two lots of cotton, paying $3 747 for one lot, and $6 274 for the other; he sells the whole for $9 895. Gain or loss, how much?

4. You have 1570 acres of land, which you rent to four tenants: to the first 265 acres, second 427, third 476, and how many to the fourth?

5. From a full cistern holding 4 000 gallons, a family used 2 825 gallons before it rained; the first rain put into the cistern 1 975 gallons; how many gallons of water did the cistern then contain?

6. You raise 1 970 bushels of corn on three fields; on one 516 bushels, on another 729 bushels, and on the third how much?

7. A shoe factory made in four weeks 15 340 pairs of shoes; the first week 3 412 pairs were made; the second, 3 927 pairs; the third, 3 749 pairs; how many pairs were made the fourth week?

8. You have 1 610 fruit-trees; you have 392 peach-trees, 415 apple-trees, 360 pear-trees, 276 plum-trees, and the rest are cherry-trees: how many cherry-trees in your orchard?

MULTIPLICATION

269. Oral Questions.

1. How many feet are there in 1 yard?

2. How many feet are in 2 yards? In 3 yards? In 4 yards?

3. A bushel of corn will fill a peck measure 4 times; how many pecks are in 4 bushels? 4 times 4 = ?

4. Add by twos from 2 to 24.

5. What is 5 times 2? 7 times 2? 6 times 2? 8 times 2? 9 times 2? 11 times 2? 12 times 2?

6. Add by threes from 3 to 36.

7. What is 5 times 3? 7 times 3? 8 times 3? 9 times 3? 6 times 3? 10 times 3? 12 times 3?

8. Add by fours from 4 to 48.

9. What is 5 times 4? 7 times 4? 6 times 4? 8 times 4? 9 times 4? 12 times 4? 11 times 4?

10. Add by fives from 5 to 60.

11. What is 5 times 5? 6 times 5? 8 times 5? 7 times 5? 12 times 5? 11 times 5? 9 times 5?

12. Add by sixes from 6 to 72.

13. What is 5 times 6? 7 times 6? 9 times 6? 8 times 6? 10 times 6? 12 times 6? 11 times 6?

14. Add by sevens from 7 to 84.

15. What is 5 times 7? 6 times 7? 8 times 7? 7 times 7? 9 times 7? 11 times 7? 12 times 7?

270. In *Multiplication* we find the sum of equal numbers.

The number we multiply is the *Multiplicand.*
The number we multiply by is the *Multiplier.*
The answer, or Result, is called the *Product.*
The sign of Multiplication is $\times$.
The sign is read *multiplied by*, or *times.*
3×4 qt. is read "Three times four quarts."
4 qt. $\times 3$ is read "Four quarts multiplied by three."

271. Multiply:

13	14	12	11	9	7	6
2	2	3	3	2	2	3

272. Written Problems.

1. What will 3 cocoanuts cost at 10 cents apiece?
2. What must be paid for 4 lots at 200 dollars apiece?
3. A man bought 5 mules at $110 a head; how much did he pay for all?
4. There are 6 rows of trees 21 trees to the row; how many trees are in the 6 rows?
5. A girl bought 9 quarts of berries at 10 cents a quart. What was paid for all?
6. Six chickens at 30 cents apiece will cost how much?
7. If the hens lay 12 eggs a day, how many will they lay in 7 days?

273. Oral Problems.

1. A lady sold 4 chickens at 25 cents each. How much did she get for them?

2. Tom has 11 marbles, and Henry has three times as many. How many has Henry? How many have both?

3. The mules are fed three times a day. How many times are they fed in 7 days?

4. A hen has four chicks, and another has three times as many. How many have both?

5. There are 6 men, each plowing with two mules. How many mules?

6. There are 4 bales of cotton on the wagon and three times as many on the ground. How many bales?

7. Six rows of trees, 5 trees in a row, are how many trees?

8. Seven ducks swimming in the pond, and twice as many flying over, are how many ducks?

9. Eight horses, each with 2 pairs of shoes: how many horseshoes?

10. If the mill-wheel turns six times in a minute, how many times would it turn during recess?

11. John weighs 50 pounds, and his father three times as much. How much do both weigh?

12. If you can pick 10 pounds of cotton an hour, how much can you pick in 7 hours?

13. How many bushels of corn will 4 acres yield at 25 bushels to the acre?

DIVISION

274. Oral Questions.

1. How many nickels can you get for a dime?

2. How many 2-cent postage stamps can you buy with 10 cents.

3. What must 3 be multiplied by to make 9?

4. Subtract by twos from 20 to 0.

5. If apples cost 2 cents each, how many can you buy for 20 cents?

6. There are 30 pupils, two by two, at double desks; how many double desks?

7. Subtract by threes from 24 to 0.

8. There are 40 shoes, all in pairs; how many pairs of shoes?

9. There are 40 shoes on horses, all full-shod; how many horses?

10. How many nickels can you get for 50 cents?

275. In *Division* we find how many times one number is contained in another.

The number to be divided is called the *Dividend.*

The number to divide by is called the *Divisor.*

The result is called the *Quotient.*

The sign of Division is $\div$.

It is read *divided by.*

$10 \div 5$ is read "Ten divided by five."

276. Written Problems.

1. Divide: $2)\overline{6}$ $2)\overline{20}$ $2)\overline{40}$ $2)\overline{60}$ $2)\overline{800}$

$$\begin{array}{r} 3 \end{array}$$

2. George paid 20 cents for pencils at 5 cents apiece. How many pencils did he buy?

3. A miller put 86 bushels of meal into sacks. Each sack held two bushels. How many sacks?

4. At 5 cents a quart for berries, how many quarts will five dollars pay for?

5. A grocer sold 90 pounds of tomatoes in 3-pound cans. How many cans?

6. A girl walks 3 miles every day. In how many days does she walk 60 miles?

7. A man divided 60 cents equally among some boys, giving each boy 4 cents. How many boys?

8. A class must read a story of 96 pages at the rate of 3 pages a day. How many days?

9. A factory made in one week 800 wagon wheels. For how many wagons?

10. There are 1 200 soldiers in tents, 4 men in a tent. How many tents?

11. If the multiplier is 4 and the product is 1 600, what is the multiplicand?

12. If the dividend is 1 800, and the divisor is 9, what is the quotient?

13. There are 1 200 shingles in 6 bundles; how many shingles to the bundle?

277. **Oral Problems.**

1. A boy had half a dollar, and found a dollar and a half. How much did he then have?

2. A man had two dollars and a half and lost a dollar and a half; how much did he then have?

3. Mary is half as old as Kate, who is sixteen years old. How old is Mary?

4. Henry's weight is 96 pounds, which is twice Mary's weight. How much does Mary weigh?

5. If you cut an apple into two equal parts, how much of the apple is one part?

6. If a cocoanut be divided equally among 4 boys, what part of the cocoanut does each boy get?

7. How many quarter-dollars can you get for half a dollar?

8. A boy has a dollar and two half-dollars. How much money has he?

9. A girl has a dollar, a half-dollar, and a quarter-dollar. How much money has she? How many quarter-dollars could she get for her money?

10. How many quarters make a half? How many quarters make a whole?

11. How many quarters are a half and a quarter?

12. How many are $\frac{1}{2}$, $\frac{1}{2}$, and 2?

13. Add $18\frac{1}{2}$ and $\frac{1}{2}$. $19\frac{1}{2}+\frac{1}{2}=?$ $20\frac{1}{4}+\frac{1}{4}=?$

14. If you divide $\frac{1}{4}$ of an apple into two equal parts what do you call each of the two parts?

278. Written Problems.

1. A man had 78 acres in two fields of equal size. How many acres in each field? $78 \div 2 = ?$

2. A man had 94 dollars and spent half of his money. How much money did he spend? $94 \div 2 = ?$

3. A girl had 20 apples and gave half of them away. How many did she give away?

$$20 \div \ 2 = 10$$
$$\tfrac{1}{2} \text{ of } 20 = 10$$
$$\tfrac{1}{2} \times 20 = 10$$
$$20 \times \ \tfrac{1}{2} = 10$$

4. In one field there are 30 acres, and in another $29\frac{1}{2}$ acres. How many acres are in the two fields?

$$\begin{array}{r} 30 \\ +29\frac{1}{2} \\ \hline \end{array}$$

5. In one field there are 30 acres and in another field there are $29\frac{1}{2}$ acres. How much larger is one than the other? $30 - 29\frac{1}{2} = ?$

6. The width of the river is $\frac{1}{2}$ mile, and the lake is 100 times as wide as the river. How wide is the lake? $100 \times \frac{1}{2} = ?$

7. A's farm contains 444 acres; B's farm is half as large as A's, and C's is half as large as B's. How many acres are in C's farm?

8. A man weighs 160 pounds, and his son weighs one fourth as much. Find the son's weight.

9. Find the difference between 1 000, and half of 1 000.

10. $1\,000 - \frac{1}{2}$ of $1\,000 = ?$

279. Oral Problems.

1. If a pigeon flies 60 miles per hour, how far will it go in ten hours?

2. How long will it take to go 60 miles at the rate of 5 miles an hour?

3. If a package of envelopes is worth 5 cents, what are 12 such packages worth?

4. What is the product of 12 and 11?

5. If a man works 8 hours a day, in how many days will he work 64 hours?

6. If a dividend is 120 and the divisor is 12, what is the quotient?

7. Subtract by sixes from 72 to 0.

8. How long will it take to pick 24 quarts of berries at the rate of 6 quarts per hour?

9. At 200 shingles to the bundle, how many shingles are in 5 bundles?

10. There are 60 soldiers in groups of 4; how many groups?

11. Forty-two dollars will pay for how many sheep at $8 per head? How much money will be left over?

12. At 500 pounds to the bale, what is the weight of eight bales of cotton?

13. A huckster sold 25 quarts of berries and gained 3 cents a quart; how much did he gain on all?

14. A man hauled 4 loads of sand for $3. How much per load?

280. Written Exercises.

Find quotients:

1. $240 \div 8$	7. $240 \div 3$	13. $240 \div 40$
2. $240 \div 6$	8. $240 \div 12$	14. $240 \div 60$
3. $240 \div 4$	9. $240 \div 24$	15. $240 \div 80$
4. $120 \div 30$	10. $120 \div 20$	16. $120 \div 4$
5. $120 \div 40$	11. $120 \div 6$	17. $120 \div 8$
6. $120 \div 60$	12. $120 \div 5$	18. $120 \div 3$

281. Find quotients:

1. $60 \div 12$	7. $600 \div 12$	13. $200 \div 40$
2. $60 \div 5$	8. $600 \div 5$	14. $200 \div 5$
3. $60 \div 20$	9. $600 \div 20$	15. $200 \div 50$
4. $300 \div 6$	10. $372 \div 6$	16. $357 \div 7$
5. $360 \div 6$	11. $378 \div 6$	17. $364 \div 7$
6. $366 \div 6$	12. $350 \div 7$	18. $248 \div 8$

282. Division with remainders.

Divide 83 by 9.

In 83 there are 9 nines and 2 over. The 2 is written over the divisor, thus, $\frac{2}{9}$, which is a fraction, called two ninths.

$$9\overline{)83}\quad 9\tfrac{2}{9}$$

283. Find quotients and remainders.

1. $43 \div 6$	5. $50 \div 7$	9. $17 \div 8$
2. $49 \div 6$	6. $57 \div 7$	10. $25 \div 8$
3. $55 \div 6$	7. $64 \div 7$	11. $35 \div 8$
4. $67 \div 6$	8. $78 \div 7$	12. $92 \div 8$

284. Multiplication and Division.

A man walked 24 miles a day for 5 days: how far in all?

Explanation.	24 miles ×5
Five times 4 = 20	20
Five times 20 = 100	100
Five times 24 = 120	120 miles

Multiply 4 by 5. Write the 0 unit in the first place; add the 2 tens to five times 2 tens = 12 tens, or 120.

$$\begin{array}{r} 24 \\ 5 \\ \hline 120 \end{array}$$

285.

A man walked 120 miles in 5 days: how far a day?

Explanation.	5)120 miles 24 miles
In 100 five is contained 20 times	
In 20 " " " 4 times	
In 120 " " " 24 times	

In Practice.

We say 5 into 12, 2 times and 2 over, 5 into 20, 4 times.

1. What is paid for 9 horses at $120 a head?
2. What is paid a head for 8 horses sold for $1 000?
3. What is the product of 160 and 7?
4. If a train runs 40 miles per hour, how far does it run in 9 hours?
5. If a train runs 270 miles in 9 hours, how far does it run per hour?

286. Written Exercises.

Find products:

1. 5×30	5. 5×40	9. 6×30
2. 5×32	6. 5×44	10. 6×42
3. 5×34	7. 5×47	11. 6×54
4. 5×36	8. 5×50	12. 6×68

287. Find quotients:

1. $180\div 6$	5. $480\div 3$	9. $500\div 4$
2. $180\div 9$	6. $480\div 6$	10. $600\div 5$
3. $180\div 10$	7. $480\div 8$	11. $1\,860\div 6$
4. $180\div 12$	8. $480\div 12$	12. $1\,890\div 6$

288. Find products:

1. 7×42	5. 8×43	9. 9×34
2. 7×54	6. 8×57	10. 9×47
3. 7×86	7. 8×64	11. 9×68
4. 7×92	8. 8×76	12. 9×97

289. Find quotients and remainders:

1. $365\div 7$	2. $609\div 8$	3. $874\div 9$
4. $1\,416\div 7$	5. $514\div 8$	6. $615\div 9$
7. $2\,109\div 7$	8. $458\div 8$	9. $424\div 9$
10. $626\div 7$	11. $346\div 8$	12. $308\div 9$
13. $728\div 11$	14. $827\div 9$	15. $719\div 9$
16. $626\div 12$	17. $989\div 11$	18. $877\div 12$
19. $794\div 9$	20. $899\div 12$	21. $674\div 8$
22. $921\div 12$	23. $971\div 9$	24. $823\div 11$

290. Oral Questions.

(Table on page 52.)

1. How many pecks are in 2 bushels?
2. How many quarts are in 2 pecks?
3. How many pecks are in half a bushel?
4. How many quarts are in half a peck?
5. How many quarts are one peck and 1 quart?
6. How many pecks are one bushel and 2 pecks?
7. What part of a bushel is a peck?

291. Written Problems.

1. Find the number of quarts in a bushel.

EXPLANATION. 1 bushel = 4 pecks.
1 peck = 8 quarts.
4 pecks = 4 times 8 quarts = 32 quarts.

2. Find the number of quarts in 1 bushel and 1 peck.

3. A man sold 1 bushel and 1 peck of seed-corn in quart bags. How many bags of corn did he sell?

4. M had 1 peck and 6 quarts of berries; how many quarts?

5. A farmer sold 8 bushels 2 pecks of peaches, and 9 bushels 2 pecks of apples. How many bushels of fruit did he sell?

6. How much more is 3 bushels 2 pecks than 2 bushels 3 pecks?

292. Oral Problems.

1. Divide twice twenty by 4. Divide three times 30 by 9.

2. Twice 12, added to 10 times 12, are how many?

3. How far does a man walk in 12 days if he walks 20 miles a day?

4. Four lines of telegraph wire 15 miles long would be how many miles of wire?

5. If a man walk 20 miles a day, how long will it take him to walk 220 miles?

6. What is the product of 11 and 12?

7. A fence is 184 feet long, and each panel is 8 feet long. Find the number of panels.

8. If each acre produces 40 bushels of corn, how many acres will produce 200 bushels?

9. A dividend is 60, and the divisor is 12; what is the quotient?

10. At $8 a head, how many sheep will cost $96?

11. If 6 bales of cotton weigh 3 000 pounds, what is the average weight per bale?

12. A man goes 11 miles an hour. How long does it take him to go 88 miles?

13. There were 56 bushels of meal, and each man's share was 7 bushels. How many men?

14. What would eight horses cost at $110 a head?

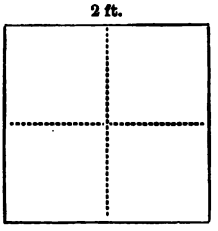
15. How many horses can be bought for $900 at $100 a head?

293. Oral Exercises.

1. You have a board 10 feet long and saw it into 10 equal pieces; a piece is how many inches in length?

2. Saw a board 12 feet long into 3 equal pieces. How long is 1 piece?

3. You have a sheet of cardboard 2 feet square, and cut it into 4 square pieces. What will each piece measure all around?

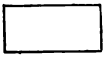


4. How many square feet in 2 feet square?

5. If you have a board 6 feet long and 1 foot wide, how many boards measuring 1 square foot can you saw out of it?

6. Make the lid of a box that measures 2 feet one way and 3 feet the other way. How many square feet?

7. Draw nine squares all fitting together into one large square.

8. Draw two oblongs  and fit them into a square.

294. Written Exercises.

How many square inches in a surface:

1. 9 in. by 40 in.?
2. 9 in. by 144 in.?
3. 8 in. by 132 in.?
4. 6 in. by 240 in.?
5. 8 in. by 216 in.?
6. 10 in. by $12\frac{1}{2}$ in.?
7. 10 in. by $37\frac{1}{2}$ in.?
8. 10 in. by $62\frac{1}{2}$ in.?
9. 10 in. by $87\frac{1}{2}$ in.?
10. 8 in. by $12\frac{1}{2}$ in.?

295. Written Exercises.

Multiply 624 by 25.

EXPLANATION.

First multiply by the 5 units. Place the first figure of the product in the units' place. Then multiply by the 2 tens; place the first figure of the product under the 2 tens. Add the two products.

$20 \times 624 = 12480$
$5 \times 624 = 3120$
$25 \times 624 = 15600$

624
25
3120
1248
15600

1. 361	2. 361	3. 361	4. 361
17	18	19	20
2527	××××	××××	7220
361	361	×××	
6137	××××	××××	

296. Find products:

1. 13×14	5. 15×17	9. 31×30	13. 16×101
2. 13×15	6. 18×18	10. 32×31	14. 17×111
3. 13×17	7. 19×13	11. 33×34	15. 23×121
4. 13×19	8. 17×19	12. 41×51	16. 25×624

297. Find products:

1. 25×625	5. 35×110	9. 43×68	13. 57×301
2. 25×725	6. 36×215	10. 47×87	14. 59×426
3. 25×825	7. 37×217	11. 58×96	15. 68×537
4. 25×925	8. 38×217	12. 69×69	16. 79×658

298. Written Exercises.

Divide 484 by 22.

$$\begin{array}{r} 22 \\ 22\overline{)484} \\ 44 \\ \hline 44 \\ 44 \\ \hline \end{array}$$

EXPLANATION.

See how many times 22 is contained in 48. Write 2 as part of the quotient. Multiply 22 by 2, and write the 44 under the first two figures of the dividend. Subtract. Bring down the next figure of the dividend, 4. See how many times 22 is contained in 44. Write 2 in the quotient. Multiply and subtract as before.

Find quotients:

1. $264 \div 22$
2. $286 \div 22$
3. $231 \div 21$
4. $252 \div 21$
5. $156 \div 13$
6. $169 \div 13$
7. $182 \div 13$
8. $273 \div 21$
9. $154 \div 14$
10. $168 \div 14$
11. $182 \div 14$
12. $165 \div 15$

299. Find quotients:

1. $506 \div 23$
2. $726 \div 33$
3. $704 \div 32$
4. $682 \div 31$
5. $462 \div 22$
6. $672 \div 32$
7. $483 \div 23$
8. $693 \div 33$
9. $713 \div 31$
10. $483 \div 21$
11. $943 \div 41$
12. $966 \div 42$

300. Find results:

1. $42 \times 22 \div 21$
2. $24 \times 22 \div 44$
3. $24 \times 26 \div 13$
4. $26 \times 28 \div 14$
5. $32 \times 33 \div 16$
6. $32 \times 34 \div 17$
7. $36 \times 31 \div 18$
8. $41 \times 32 \div 16$

301. Oral Problems.

1. How much does a man earn in six days, when he earns 3 dollars a day?

2. What is paid for a gallon of milk at 5 cents a pint?

3. When a man is paid $24 for six days' work, how much does he earn a day?

4. What will $2\frac{1}{2}$ pounds of butter cost at 30 cents a pound?

5. When a man earns $4 per day, and spends a dollar a day, how much does he save in six days?

6. In how many days will a man earn $6, if he works for $1.50 a day?

7. If you step two feet at a time, how many steps will you make in walking 60 yards?

8. At 40 cents a peck, how much would a bushel and a peck of peaches cost?

9. In an orchard there are 40 pear-trees, 80 peach-trees, and 80 apple-trees. How many trees?

10. A man bought 3 horses at $150 a head and sold them for $500. How much did he gain?

11. Ruth paid 50 cents for 5 pencils and a book. The book cost 30 cents; how much apiece did she pay for the pencils?

12. Mary paid $1 for tea, and for sugar at 6 cents a pound. The tea cost 70 cents a pound; how many pounds of sugar did she buy?

302. Written Problems.

1. A farmer's expenses were: for labor, $387; for corn, $126; for implements, $95; for 1 mule, $115; for family and other expenses, $567; find the total.

2. A remainder is 346, and the minuend is 950; what is the subtrahend?

3. A farmer raised 10 bales of cotton, weighing as follows:

#1. 568; #2. 496; #3. 521; #4. 490; #5. 492; #6. 515; #7. 503; #8. 486; #9. 476; #10. 450; find the weight of the 10 bales.

4. At 32 pounds to the bushel, how many bushels of oats will weigh 6 752 pounds?

5. A miller ground 5 412 bushels of corn, averaging 44 bushels a day. How many days?

6. In a cistern there are 6 480 gallons of water. How long will the water last if 45 gallons be used per day?

7. A field of 80 acres produced 32 bushels of corn to the acre. What was the total yield of corn?

8. What is the weight of 2 560 bushels of corn at 56 pounds to the bushel?

9. A farm was sold at 36 dollars an acre, and brought $4 176. Find the number of acres in the farm.

10. Find the difference between 31×43 and 30×44.

11. Find the difference between $720 \div 8$ and $720 \div 9$.

12. Find the difference between 8×64 and 16×32.

303. Written Exercises.

Find results:

1. $327+816-525$
2. $719+267-942$
3. $614+328-717$
4. $219+947-808$
5. $652+347-809$
6. $513+827-647$
7. $299+386-518$
8. $727+263-649$
9. $742+276-109$
10. $1547+219-909$
11. $821+268-417$
12. $633+429-348$

304. Find quotients:

1. $216\div18$
2. $540\div27$
3. $744\div24$
4. $525\div25$
5. $187\div17$
6. $154\div14$
7. $320\div16$
8. $420\div14$
9. $930\div31$
10. $540\div27$
11. $640\div16$
12. $720\div24$
13. $861\div41$
14. $352\div16$
15. $396\div18$
16. $450\div15$

305. Find products:

1. 24×48
2. 32×64
3. 18×36
4. 19×35
5. 16×64
6. 32×32
7. 24×45
8. 23×46
9. 27×54
10. 18×81
11. 36×41
12. 35×42
13. 48×62
14. 24×124
15. 32×93
16. 33×92

306. Find sums:

1. $35+78+39$
2. $62+37+96$
3. $88+92+47$
4. $72+87+79$
5. $63+148+217$
6. $82+309+528$
7. $79+215+307$
8. $64+719+216$
9. $400+19\frac{1}{2}$
10. $320+21\frac{1}{2}$
11. $780+10\frac{1}{2}$
12. $650+20\frac{1}{2}$

307. Find differences:

1. $17001 - 16909$
2. $22010 - 21307$
3. $15091 - 14318$
4. $25310 - 24692$
5. $37840 - 19969$
6. $32622 - 16391$
7. $14080 - 7921$
8. $8043 - 6277$
9. $3149 - 198\frac{1}{2}$
10. $742 - 30\frac{1}{2}$
11. $615\frac{1}{2} - 49$
12. $721\frac{1}{2} - 619\frac{1}{2}$

308. Find products:

1. $38 \times 37 \times 36$
2. $42 \times 19 \times 17$
3. $16 \times 47 \times 38$
4. $29 \times 39 \times 28$
5. $77 \times 83 \times 26$
6. $45 \times 79 \times 67$
7. $36 \times 48 \times 64$
8. $28 \times 57 \times 49$
9. $47 \times 88 \times 38$
10. $63 \times 49 \times 76$
11. $58 \times 69 \times 83$
12. $46 \times 36 \times 78$

309. Find quotients:

1. $264 \div 22$
2. $880 \div 44$
3. $770 \div 35$
4. $330 \div 15$
5. $1325 \div 35$
6. $1849 \div 43$
7. $3168 \div 72$
8. $1936 \div 44$
9. $1258 \div 37$
10. $1518 \div 46$
11. $1598 \div 34$
12. $1046 \div 27$

310. Find results:

1. $24 \times 25 \div 75$
2. $32 \times 32 \div 64$
3. $74 \times 62 \div 37$
4. $64 \times 48 \div 96$
5. $54 \times 27 \div 81$
6. $92 \times 48 \div 23$
7. $84 \times 37 \div 28$
8. $27 \times 38 \div 57$
9. $26 \times 38 \div 19$
10. $47 \times 52 \div 26$
11. $86 \times 54 \div 43$
12. $92 \times 92 \div 46$

311. Find results:

1. $(75 \div 3) \times 36$
2. $(68 \div 17) \times 48$
3. $(480 \div 15) \times 89$
4. $(750 \div 25) \times 98$
5. $(1250 \div 25) \times 37$
6. $(512 \div 16) \times 99$

CHAPTER V

NOTATION AND NUMERATION — REVIEW OF FUNDAMENTAL OPERATIONS — SPECIAL CASES IN MULTIPLICATION AND DIVISION — SIMPLE MEASURES — FRACTIONS

NOTATION AND NUMERATION

312. Oral Questions.

1. What does V on a nickel stand for?
2. When do both hands of the clock point to XII?

313. Learn the following:

I	V	X	L	C	D	M
One	Five	Ten	Fifty	One hundred	Five hundred	One thousand

314. When a letter of less value is at the left of a letter of greater value, the value of the greater letter is lessened by the value of the letter at its left.

Roman Notation is used for such purposes as numbering the hours on clocks and watches, and for numbering volumes, chapters, etc.

315. Written Exercises.

1. Write in figures: X; XI; XII; XIII; XIV; XV.
2. Write in figures: XVI; XVII; XVIII; XIX; XX.
3. Write in figures: XXI; XXII; XXIII; XXIV; XXV.
4. Write in figures: XXVI; XXVII; XXIX; XXX; XL; L.

316. Oral Questions.

Read the following numbers:

1.	2001	2.	1001	3.	4011	4.	3010	5.	6090
6.	5021	7.	7010	8.	701	9.	8901	10.	10010
11.	12101	12.	13012	13.	10121	14.	101	15.	26101

16. What is the largest number shown with two figures?

17. What is the smallest number shown with three figures?

18. What is the largest number shown with three figures?

19. What is the smallest number shown with four figures?

317. Written Exercises.

Write in words:

1. 1 001	6. 10 502	11. 120 502
2. 1 020	7. 15 002	12. 102 025
3. 2 003	8. 10 052	13. 150 022
4. 6 137	9. 15 020	14. 205 202
5. 1 307	10. 12 050	15. 502 205

318. Write in figures:

1. Ten thousand one
2. Ten thousand eleven
3. Eleven thousand three
4. Twenty thousand nine
5. One hundred thousand seventy
6. One hundred seventy thousand
7. Seventy thousand one hundred
8. Seven thousand seventeen

(Note. The teacher, with little effort, can supply supplemental work indefinitely. It is by actual practice that skill in notation is acquired.)

319. Oral Drills.

Give sums:

20+30+40	200+300+400	22+32+42
30+40+50	300+400+500	32+42+52
40+50+60	400+500+600	42+52+62
50+60+70	500+600+700	52+62+72

320. Give remainders:

90−50	1000−200	99−50	17−9
100−50	1000−400	99−60	18−7
110−50	1000−600	99−70	20−8
120−50	1000−800	99−80	31−8

321. Give products:

10×40	12×60	100×40	12×600
11×40	11×60	110×40	11×600
12×40	10×60	120×40	10×600
12×50	9×60	120×50	9×600

322. Give quotients:

500÷100	600÷100	800÷100	1000÷100
500÷ 50	600÷ 60	800÷ 80	1000÷ 50
500÷ 25	600÷ 30	800÷ 40	1000÷ 25
500÷ 20	600÷ 15	800÷ 20	1000÷ 20

323. Give results:

10× 50÷25	8× 50÷40	12×100÷6
10×100÷25	8×100÷40	12×200÷6
10×200÷25	8×200÷40	12×300÷6
10×500÷25	8×400÷40	12×400÷6

324. Written Exercises.

Find sums:

1.	2.	3.	4.	5.	6.
478	379	987	577	871	569
595	956	778	796	796	278
616	785	695	978	659	965
973	977	348	465	884	798
868	466	795	798	774	643
255	985	688	653	669	899

325. Find sums:

1.	2.	3.	4.	5.	6.
1 072	987	1 456	5 409	4 297	3 799
2 986	6 542	2 987	3 986	2 974	6 654
5 439	3 988	3 798	2 757	7 929	9 587
8 767	2 756	2 565	1 986	6 576	8 656
7 998	2 689	3 878	2 465	5 895	7 968
5 475	4 557	6 547	1 778	8 658	5 495

326. Find sums:

1.	2.	3.	4.	5.	6.
9 579	8 765	7 999	6 598	7 789	5 697
8 865	9 876	8 654	5 798	6 954	7 987
7 978	7 998	6 987	6 987	9 678	6 559
6 569	5 679	5 768	4 879	8 795	9 778
7 897	9 547	9 876	9 765	7 867	8 866
4 579	4 896	7 599	7 656	5 549	4 998
6 238	5 987	9 976	5 198	3 809	9 965
5 965	7 876	6 789	6 209	8 498	7 688

327. Written Exercises.

Find the differences:

1. 347 019 298 137	2. 462 160 398 586	3. 251 721 192 817	4. 426 005 261 916
5. 216 573 162 987	6. 417 062 138 156	7. 362 870 291 941	8. 376 207 179 218
9. 172 637 91 783	10. 316 008 219 126	11. 733 012 198 437	12. 312 690 193 792
13. 801 615 719 387	14. 261 432 172 655	15. 476 321 379 265	16. 501 030 257 061
17. 471 235 273 562	18. 362 610 269 725	19. 354 205 263 718	20. 426 131 135 915

328. Written Exercises.

1. A remainder is 346, and the minuend is 950; what is the subtrahend?

2. A remainder is 1 991, and the minuend is 3 000; what is the subtrahend?

3. A subtrahend is 28 885, and the minuend is 30 000; what is the remainder?

4. Four thousand nine hundred seventy-six is how much less than five thousand eleven?

5. Six thousand twelve is how much more than one thousand seven hundred twenty-nine?

329. Write in figures and find products:

1. Seven hundred ninety, and twenty-six.
2. Five hundred two, and thirty-seven.
3. Six hundred twenty, and forty-eight.
4. Eight hundred nineteen, and seventy-six.
5. Nine hundred nine, and seventy-nine.
6. One thousand ninety-eight, and eighty-three.
7. Three thousand seventeen, and eighty-seven.
8. Two thousand four, and fifty-six.
9. Eight thousand seven, and sixty-seven.
10. Seven thousand seventy, and ninety-eight.
11. Six thousand seven hundred nine, and fifty-seven.
12. Ten thousand forty-two, and sixty-nine.

330. Write in figures and find quotients:

1. Seven hundred sixty-two, by thirty-three.
2. Eight hundred forty, by forty-one.
3. Six hundred twenty-one, by fifty-seven.
4. One thousand nine, by thirty-four.
5. One thousand one hundred nine, by forty-seven.
6. Two thousand three hundred one, by forty-eight.
7. Two thousand sixteen, by forty-nine.
8. Three thousand seven, by fifty-nine.
9. Three thousand one hundred two, by fifty-nine.
10. Four thousand eleven, by seventy-six.
11. Five thousand nineteen, by sixty-nine.

331. Oral Exercises.

1. John lives 9 miles east of the bridge and James lives 8 miles west of it. How far apart do they live?

2. A girl is 9 years old to-day; in what year was she born?

3. What is the sum of half a dollar and ten dollars and a half?

4. One number is $16\frac{1}{4}$; another number is 27. What is the difference?

5. How many are twice 20, added to half of 20? How much is half of 20, subtracted from twice 20?

6. How many cents are 2 dimes and 4 nickels?

How many are:

Five times 90?	Twice $2\frac{1}{2}$?	7×60?
A half of $2\frac{1}{2}$ dollars?	Twice $2\frac{1}{4}$?	9×70?
A quarter of 10 dollars?	$12\times\frac{1}{2}$?	8×90?
$\frac{1}{2}$ added to $1\frac{1}{2}$?	$1\frac{1}{2}-\frac{1}{2}$?	6×25?

332. Written Problems.

1. A nurseryman sold one week 756 pear-trees, 1 598 apple-trees, 589 peach-trees, and 179 cherry-trees; how many trees in all?

2. Find the cost of building a house from the amounts here given:

Brick and stone,	\$275;	Carpenter work,	\$650;
Lumber,	726;	Mason work,	184;
Other materials,	318;	Painting, etc.,	345.

3. How many inches are there in 9 yards?

4. What is the cost of 9 tons of cotton-seed meal, at $21 per ton?

5. A farmer had 8 hands picking cotton for a week; they averaged 149 pounds per day to the hand; how much did they all pick per day?

How much did they pick in the 6 days?

6. On each of 32 cards there is a gross of buttons; the total number of buttons is 4 608; how many make a gross?

7. At 55 pounds to the bushel, how many bushels of sweet potatoes will weigh 605 pounds?

8. A man paid $2 for a bridle, and 7 times as much for a saddle; how much did he pay for the saddle? How much did he pay for both?

9. How many yards are in 39 bolts of sheeting, averaging 42 yards to the bolt?

10. What is the weight of 126 bushels of oats, at 32 pounds to the bushel?

11. Subtract the difference between twenty thousand thirteen and nineteen thousand nine hundred ninety-eight from 31.

12. From the sum of ninety thousand nineteen and ninety-nine thousand seven, subtract their difference.

13. From the sum of one hundred ninety thousand three and two hundred nineteen thousand forty-nine, subtract their difference.

SPECIAL CASES IN MULTIPLICATION

333. Oral Questions.

1. Ten times 20 horses are how many horses?

2. To multiply 20 by 10, what figure is written after 20?

3. Ten times 70 houses are how many houses?

4. A hundred times 3 dollars are how many dollars?

5. To multiply 3 by 100, what figures are written after 3?

334. Written Problems.

1. What is the product of 10 and 125?

2. Multiply 125 by 20.

$$\begin{array}{r} 125 \\ 10 \\ \hline 1\,250 \end{array} \qquad \begin{array}{r} 125 \\ 20 \\ \hline 2\,500 \end{array}$$

3. Find the cost of 30 acres of land at $19 an acre.

4. In 1 mile there are 5 280 feet; how many feet are there in 40 miles?

5. If there are 29 telegraph poles to the mile, how many telegraph poles in 50 miles?

6. Seventy mules, at $125 each, would cost how much?

7. The multiplicand is 79; the multiplier is 80; what is the product?

8. The multiplier is 90; the multiplicand is 89; what is the product?

9. The multiplier is 100; the multiplicand 76; what is the product?

$$\begin{array}{r} 76 \\ 100 \\ \hline 7\,600 \end{array}$$

10. How much would 200 horses, at $75 per head, cost?

11. A farmer averaged 22 bushel of oats per acre on 300 acres; how many bushels in all?

12. Find the sum of the products of 9×337, 6×479, 7×698.

13. Find the sum of the products of 8×376, 7×987, 6×679.

335. Multiply 893 by 365.

EXPLANATION.

The multiplier is composed of 5, 60, and 300

$5\times893=\ 4\,465$
$60\times893=\ 53\,580$
$300\times893=267\,900$
$365\times893=325\,945$

IN PRACTICE.

I. Multiply by the 5 units.
II. Multiply by the 6 tens, placing the first figure under the tens of the first product, and so on.
III. Multiply by the 3 hundreds, placing the first figure under the hundreds of the other products, and so on.
IV. Add the three partial products.

```
  893
  365
 4465
5358
2679
325945
```

14. The multiplicand is 6 812; the multiplier is 203; what is the product?

```
  6 812
    203
 ××  ×××
××  ×××
1 382 836
```

Since there is no ten *in the multiplier, there are only two partial products.*

15. A cotton merchant bought 104 bales of cotton averaging 469 pounds. What was the entire weight?

336. Oral Questions.

1. One yard equals 3 feet; how many feet in 21 yards. Is it 21 times 3, or 3 times 21?

337. The small number may be used as the multiplier; the answer will be like the *true* multiplicand.

2. Seven days make a week. How many days are in 52 weeks? Is it 7 times 52, or 52 times 7?

3. $52 \times 7 = ?$ $7 \times 52 = ?$

338. Written Problems.

1. A farmer bought 1728 acres of land at \$15 per acre; what was the whole cost?

EXPLANATION.

When the multiplier is a much larger number than the multiplicand, the numerical product is more quickly found by reversing the factors. The product, however, is of the same nature as the *true* multiplicand.

Process.

1728
15
× ×××
×× ××
$\$_{\times\times}$ ×××

In solving the problems below, write the word *multiplicand* opposite each true multiplicand.

2. What would be the cost of 447 sheep at \$7 a head and 180 cattle at \$20 a head?

3. A farmer made an average profit of \$4 per acre on 76 acres in cotton, and \$5 per acre on 69 acres in oats; what were his profits on the two crops?

4. A man bought 125 acres of land at $6 per acre, and 10 acres at $27 per acre; what was the whole cost?

5. How much was paid for a farm of 239 acres at $36 an acre?

6. A farmer gathered 42 bushels of corn per acre from 279 acres; find the total yield.

7. To fence a pasture the owner finds that 3 598 panels, each of 12 rails, will be required; how many rails will it take for the pasture?

8. The multiplier is 455; the multiplicand is $500; find the product.

9. What was the cost of 1 357 head of cattle sold at $22 a head?

10. The total yield of sweet potatoes in one county was 15 798 bushels; how many pounds at 55 pounds to the bushel?

11. If there are 30 telegraph poles to the mile, how many are on a line 279 miles long?

339. Written Exercises.

Find products:

1. $25 \times 42 \times 78$	6. 437×175	11. 403×984
2. $34 \times 19 \times 67$	7. 562×225	12. 307×879
3. $51 \times 72 \times 99$	8. $1\,987 \times 351$	13. $506 \times 1\,876$
4. $87 \times 68 \times 53$	9. $3\,877 \times 242$	14. $604 \times 2\,998$
5. $62 \times 67 \times 69$	10. $9\,208 \times 313$	15. $705 \times 3\,819$

340. Oral Exercises.

1. In how many hours will a train run 400 miles at 40 miles an hour?

2. At 25 miles an hour, how far will a train run in 4 hours?

3. What number is one fourth of 100?

4. Four boys catch 100 fish; if they share equally, how many will each have?

5. How many are $25+25+25+25$?

How many are:

8×60?	A half of 120?	$75¢+25¢$?
9×60?	A fourth of 120?	$\frac{1}{4}+\frac{1}{2}$?
9×70?	A fourth of 60?	$\frac{3}{4}+\frac{1}{2}$?

341. Written Problems.

1. A gentleman sold a plantation for \$23 750, which was \$4 960 more than he paid for it; what did it cost him?

2. The minuend is 671 420; the subtrahend is 483 739; what is the remainder?

3. Find cost of steerage passage on a steamer from New Orleans to New York for a family of 9 at \$19 each.

4. A farmer carried to mill 9 bushels of wheat, weighing 60 pounds to the bushel, and 8 bushels of corn, weighing 56 pounds to the bushel. How many pounds of grain did he carry to mill?

5. In 1 mile there are 1 760 yards; how many yards are in 24 miles?

6. Find the weight of 256 bushels of corn at 56 pounds to the bushel.

7. A carpenter spends $2 every day; each day that he works he earns $3; he works 25 days in July and 24 days in August; how much does he save in the two months?

8. In nine loads a wagon hauls 22 400 pounds; the first 7 loads average 2 629 pounds; the eighth load weighs 2 000 pounds; what is the weight of the last load?

9. In a square mile there are 640 acres; how many acres are in 27 square miles?

10. A railroad company purchased 28 acres of land at $325 per acre; how much was paid for the whole?

11. To plant an orchard 1 072 trees are needed. There are to be 24 rows of apple-trees, 16 trees to the row; 36 rows of peach-trees, 16 to the row; and all the other trees are to be pears; how many pear-trees are needed?

12. From the difference between 18 321 and 20 110, subtract the difference between 234 969 and 235 132.

13. Out of a fifty-dollar note a traveler paid in 3 days $18 dollars for railway fares, and $5 per day for all other expenses. How much of his $50 remained?

14. A field has a fence 12 rails high; in each end there are 75 panels, and in each side 195 panels; how many rails in the fence?

15. Add three thousand one, six hundred seventy, and two thousand four hundred nine.

16. $(19 \times 21) - (18 \times 22) = ?$

342. Written Exercises.

Find sums:

1. $376+594+807$
2. $718+923+572$
3. $409+816+398$
4. $627+392+543$
5. $687+542+329$
6. $820+377+713$
7. $938+832+616$
8. $295+793+897$
9. $\$24+\$380$
10. $\$75+\$927$
11. $\$56+\$342$
12. $\$91+\$516$

343. Find remainders:

1. $2001-591$
2. $3608-819$
3. $2732-2698$
4. $1503-996$
5. $7501-189$
6. $3271-393$
7. $4716-927$
8. $1632-854$
9. $7162-1398$
10. $9307-8428$
11. $6221-5572$
12. $5160-4601$

344. Find products:

1. 37×509
2. 49×613
3. 72×847
4. 67×918
5. 347×862
6. 209×976
7. 673×759
8. 867×927
9. $15\times15\times15$
10. $14\times15\times16$
11. $13\times16\times16$
12. $12\times17\times16$

345. Find results:

1. $984+237-893$
2. $657+729-648$
3. $731+625-967$
4. $842+379-723$
5. $392+984-607$
6. $527+674-503$
7. $(33\times34)-(32\times35)$
8. $(41\times50)-(40\times51)$
9. $(19\times26)-(18\times27)$
10. $(37\times38)-(36\times39)$
11. $(72\times72)-(71\times73)$
12. $(68\times69)-(67\times70)$

SPECIAL CASES IN DIVISION

346. Oral Questions.

1. To multiply 2 by 10, what figure is written after 2?

2. To divide 20 by 10, what figure is dropped from 20?

3. A hundred times 3 dollars are how many dollars?

4. To divide 300 by 100, what two figures are dropped?

5. Divide 4 000 by 2 000.

$$2\not{0}\not{0}\not{0})\underline{4\not{0}\not{0}\not{0}}$$
$$2$$

347. Written Problems.

1. The dividend is 400; the divisor is 20; find the quotient.

$$2\not{0})\underline{40\not{0}}$$

2. A dealer paid $600 for sewing-machines at $30 apiece; how many did he buy?

3. A farmer bought land at $40 an acre, and paid $8 000; how many acres did he buy?

4. From 300 acres a farmer harvested 6 600 bushels of grain; how many bushels did he get per acre?

5. A merchant had $10 000 in 50-dollar bills; how many bills?

6. A dealer has 100 000 shingles in bundles, each containing 200; how many bundles?

7. A train runs 660 miles at the rate of 30 miles an hour; how long does it take?

348. Oral Questions.

1. Subtract by twos from 24 to 0.

2. John paid 15 cents for oranges at 5 cents apiece; how many oranges did he buy?

3. Subtract by threes from 36 to 0.

4. George paid 20 cents for pencils at 4 cents apiece; how many pencils did he buy?

5. Subtract by fours from 48 to 0.

6. How many nickels are in 50 cents?

7. Subtract by fives from 60 to 0.

8. A man paid $36 for shoes at $2 a pair; how many pairs did he buy?

9. Subtract by sixes from 72 to 0.

10. How many eights are in 56?

11. If a man works 8 hours per day, in how many days will he work 96 hours?

349. Written Problems.

1. If a merchant sells sugar at 6 cents per pound, how many pounds does he sell for 66 cents?

2. Some boys shared equally 48 apples; each boy received 4 apples; how many boys were there?

3. A merchant gained $35 from the sale of cloaks, his profit on each cloak being $5; how many cloaks?

4. How many times does $363 contain $3?

5. How many times can $4 be subtracted from $484?

$4)\overline{\$484}$

6. At 7 cents a quart how many quarts of tomatoes can be bought for $3.85? (385¢ ÷ 7¢.)

7. How many times does $816 contain $8?

8. Nine hundred thirty-six dollars will pay how many men $9 each for a week's work?

9. In one bushel there are 32 quarts; how many bushels in 640 quarts?

10. How many hours in 1 440 minutes?

11. A farmer raised 1 170 bushels of corn on a field that produced 26 bushels to the acre; how many acres in the field?

12. A farmer received $56.10 for a bale of cotton sold at 11 cents a pound; find the weight of the bale.

13. In an orchard there are 650 trees, 25 trees to the row; how many rows of trees?

14. A train runs 32 miles an hour; in how many hours will it run 1 000 miles?

15. In a quire of paper there are 24 sheets; how many quires in 600 sheets?

16. A man paid $7.20 for eggs at 18 cents a dozen; how many dozen did he buy?

17. A fence was built with 3 708 rails, 12 rails to the panel; how many panels in the fence?

18. If a man saves $15 a month, in how many months will he save $1 000?

19. How many times can a bucket holding 13 quarts be filled from a vessel holding 299 quarts of water?

350. Oral Questions.

1. If four boys share equally 48 apples, how many apples will each boy have?

2. What number can be subtracted just 4 times from 48? What is $\frac{1}{4}$ of 48?

3. If 72 acres of land be divided into 3 equal fields, how many acres will be in each?

4. In nine miles there are 72 furlongs; how many furlongs are in one mile?

5. In 5 bushels there are 40 half-pecks; how many half-pecks are in 1 bushel?

6. If 8 men share equally 56 pounds of beef, how many pounds of beef will each man have?

7. What number can be subtracted from 45 just 5 times?

8. If 8 cart-loads of sand weigh 4 800 pounds, what is the average weight to the load?

9. If 12 pencils cost 60 cents, what is the cost of 1 such pencil?

10. If 12 cars have 96 wheels, how many wheels does 1 car have?

11. What number can be subtracted from 100 just 4 times?

12. Frank rode on his bicycle 45 miles in 5 hours; what was his average rate of speed per hour?

13. If you buy 40 dozen eggs for \$8.00, what do you pay per dozen?

351. Written Problems.

1. If 6 bales of cotton weigh 3 006 pounds, what is the average weight per bale?

2. If 7 bushels of potatoes weigh 385 pounds, what is the weight of 1 bushel?

$\frac{1}{7}$ of 38 tens is 5 tens, and 3 tens remain; the 3 tens are 30 units, to be added to the 5 units; $\frac{1}{7}$ of 35 units is 5 units.

7)385
55

3. If 9 tons of cotton-seed meal can be bought for $198, what is the price per ton?

4. If 8 bushels of oats weigh 256 pounds, what is the weight of 1 bushel?

5. A ship sails 1 260 miles in 7 days; what is her average speed per day?

6. A wagon hauled 7 776 bricks in eight loads; how many bricks to the average load?

7. If in nine miles there are 261 telegraph poles, how many telegraph poles are there to the mile?

8. If you pay $6.00 for 12 ducks, what do you pay apiece?

9. A legacy of $17 500 is divided equally among 5 heirs; how much to each?

10. If the train runs 265 miles in 8 hours, what is its average speed per hour?

11. A man paid $7.20 for 40 dozen eggs; what was the price per dozen?

12. In 25 quires of paper there are 600 sheets; how many sheets to the quire?

352. Written Problems.

1. A man rode 72 miles, at the rate of 9 miles per hour; *how many hours?*

There are 8 times 9 miles in 72 miles.
Therefore it will take 8 times 1 hour to ride 72 miles.

353. In Subtractional Division we find how many times the Divisor is contained in the Dividend.

2. A man rode 72 miles in 8 hours, making the same distance every hour; in 1 hour he rode *how many miles?*

(8 hours is not contained in 72 miles.)
Distance made in 8 hours = 72 miles.
Distance made in 1 hour = $\frac{1}{8}$ of 72 miles.
$\frac{1}{8}$ of 72 miles = 9 miles.

354. In Partitive Division we find one of the equal parts of the Dividend.

3. The yearly salaries of 6 traveling salesmen amount to \$9 900; what is the average salary?

4. The yearly expenses of 7 traveling salesmen amount to \$9 800; what is the average?

5. A butcher paid \$54 for 9 head of sheep; find the average cost per head?

6. A farmer sold hogs at \$9 per head, and received \$63 for them; how many hogs did he sell?

7. On 8 acres a farmer raised 977 bushels of sweet potatoes; how many bushels did he average to the acre?

355. Written Problems.

1. A carrier-pigeon flew 952 miles at the rate of 68 miles an hour; how many hours?

2. A carrier-pigeon flew 952 miles in 14 hours; how many miles per hour?

3. In 34 days a town received 1 462 bales of cotton; how many bales were the average daily receipts?

4. A town received 1 462 bales of cotton, averaging 43 bales a day; how many days?

5. A farmer raised 425 bushels of corn on 17 acres; how many bushels to the acre?

6. A field of 25 acres produced 425 bushels of corn; what was the average yield per acre?

7. A farm of 143 acres was sold for $3 146; what was the price paid per acre?

8. A farm was sold for $3 146 at $22 per acre; how many acres were in the farm?

9. A vineyard has 16 368 vines in 132 rows; how many vines to the average row?

10. There are 16 368 vines in a vineyard, with 124 vines to the row; how many rows?

11. If 23 acres produce 506 bushels of wheat, what is the average yield per acre?

12. How many acres will produce 506 bushels of wheat at the rate of 22 bushels to the acre?

13. If 46 acres produce 1 012 bushels of wheat, what is the average yield per acre?

356. Divide 1,293,647 by 321.

EXPLANATION.

I. The divisor is not contained in 1, in 12, or in 129; the first partial dividend is 1 293.

II. See how many times 1 293 contains 321. Write the 4 above the last figure of the partial dividend. Multiply the divisor by 4; write the product under 1 293, and subtract. Bring down the next figure of the dividend (6).

III. Since 96 does not contain 321, write 0 as the next figure of the quotient. Bring down the next figure of the dividend (4).

IV. See how many times 964 contains 321. Write the 3 as the next figure of the quotient. Multiply the divisor by 3; write the product under 964, and subtract. Bring down the last figure of the dividend (7).

V. Since 17 does not contain 321, write 0 in the quotient. The answer is 4 030 (quotient) + 17 (remainder), or $4\,030\frac{17}{321}$.

$$\begin{array}{r} 4\,030\frac{17}{321} \\ 321\overline{)1\,293\,647} \\ \underline{1\,284} \\ 964 \\ \underline{963} \\ 17 \end{array}$$

357. **Written Exercises.**

Find quotients:

1. $5\,830 \div 115$	2. $20\,592 \div 144$	3. $29\,683 \div 112$
4. $5\,600 \div 140$	5. $18\,792 \div 162$	6. $30\,132 \div 124$
7. $6\,326 \div 23$	8. $16\,170 \div 154$	9. $30\,500 \div 244$
10. $7\,500 \div 150$	11. $23\,023 \div 161$	12. $30\,870 \div 126$

358. Find quotients:

1. $31\,122 \div 247$	2. $37\,996 \div 236$	3. $40\,869 \div 171$
4. $36\,424 \div 157$	5. $38\,468 \div 163$	6. $41\,452 \div 241$
7. $37\,206 \div 159$	8. $39\,105 \div 237$	9. $41\,866 \div 173$
10. $37\,835 \div 161$	11. $39\,985 \div 168$	12. $44\,652 \div 183$

359. Find quotients:

1. $62\,484 \div 254$	2. $68\,724 \div 276$	3. $70\,867 \div 254$
4. $62\,230 \div 245$	5. $69\,527 \div 251$	6. $71\,446 \div 278$
7. $67\,678 \div 274$	8. $69\,804 \div 277$	9. $72\,217 \div 257$
10. $67\,952 \div 248$	11. $70\,587 \div 279$	12. $74\,226 \div 267$

360. Find quotients:

1. $76\,176 \div 276$	2. $90\,298 \div 299$	3. $104\,907 \div 289$
4. $81\,189 \div 279$	5. $93\,274 \div 313$	6. $108\,537 \div 363$
7. $85\,813 \div 287$	8. $101\,277 \div 363$	9. $104\,153 \div 376$
10. $89\,999 \div 301$	11. $101\,566 \div 279$	12. $110\,763 \div 397$

MEASURES

361. Oral Questions.

1. How many pints are in a quart and a half?
2. How many quarts in a gallon and a half?
3. How many pecks in a bushel and a half?
4. How many quarts in a peck and a half?
5. How many inches in a foot and a half?

362. 16 ounces = 1 pound.

6. How many feet are in three yards?
7. How many ounces are in half a pound? In 2 pounds? In $2\frac{1}{2}$ pounds?
8. How many ounces in a pound and a quarter?

9. What would a pound of tea be worth at five cents an ounce?

10. Eighteen ounces are a pound and how many ounces?

11. Half a pound is how many ounces less than a pound?

12. Take 8 ounces from a pound; how many ounces are left?

13. Add 7 ounces to a pound; how many ounces in all?

14. How many pounds in 48 ounces?

15. If a loaf of bread weigh 6 ounces, how much would 6 such loaves weigh?

16. In 96 ounces how many pounds?

17. If an ounce of silver is worth $1, what is the value of $2\frac{1}{2}$ pounds of silver.

18. If 16 girls share equally 2 pounds of candy, how many ounces does each girl get?

19. How many 6-oz. loaves of bread weigh 48 ounces?

20. From 3 lb. lead, how many 2-oz. balls can be made?

363. Written Problems.

1. A fishing pole is 13 feet 4 inches long, and the line is 26 feet 9 inches long. Find the length of both.

13 ft. 4 in.
26 9
40 ft. 1 in.

4 in. + 9 in. = 13 in. = 1 ft. 1 in.
Write 1 inch, and add 1 ft. to the feet.

2. One pear-tree yielded 3 bu. 2 pk., and another tree 2 bu. 3 pk. of pears; find the difference.

$$\begin{array}{rrr} 3 \text{ bu.} & 2 \text{ pk.} = & 2 \text{ bu.} \quad 6 \text{ pk.} \\ & & 2 \qquad 3 \end{array}$$

3. Find the cost of 2 bu. 2 pk. of peaches at 25 cents a peck.

2 bu. = 8 pk. 8 pk. + 2 pk. = 10 pk. $10 \times 25¢ = ?$

4. A family uses 3 quarts of milk a day. In how many days will 30 gallons be used?

30 gallons = 30×4 qt. = 120 qt. 120 qt. $\div 3$ qt. = 40

5. If it takes 8 ounces of seed to the row, how many pounds are required for 22 rows?

22×8 oz. = ? 176 ounces = how many pounds?

6. At 30 cents a pound, how much must be paid for 18 pounds 8 ounces of butter? $18\frac{1}{2} \times 30$ cents = ?

7. A man bought a bushel of peanuts for \$2, and sold them at 10 cents a quart. How much did he gain?

8. Find the cost of 3 bushels of apples at 25 cents a peck.

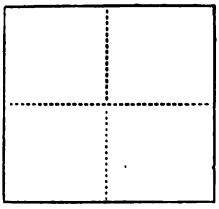
9. Find the cost of a bushel of onion sets at 25 cents a quart.

10. If a cupful of flour weighs 4 ounces, how many pounds are in 80 such cupfuls?

11. Buy 8 oz. butter at 30 cents per lb., and 2 lb. cheese at 20 cents per lb. How much do you pay?

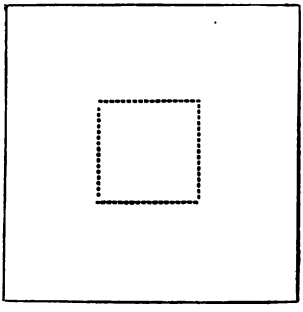
12. If a quart of oats weigh 16 ounces, how many pounds will a bushel weigh?

364. Oral Exercises.



1. If you draw or cut from paper an inch square, how many inches will it measure all around?

2. If you cut from paper a square that measures 2 inches to the side, how many inches does it measure all around?



3. Cut the 2-inch square into inch squares. How many pieces do you get?

4. How many square inches in a 2-inch square?

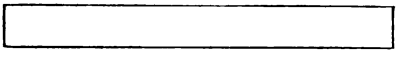
5. How many square inches in a square 3 inches to the side?

6. How many square feet in a square 2 feet to the side?

7. How many square feet in a square 3 feet to the side?

A square.

A rectangle.



8. Here is a plank 1 foot wide, and 12 feet long; and a piece that is 1 foot square, or a square foot. How many square feet in the 12-foot plank?

9. How many square feet in half the 12-foot plank?

10. How many square feet in a square yard?

365. Written Exercises.

Find the sums:

1. $185+300+37\frac{1}{2}$
2. $87\frac{1}{2}+259+929$
3. $62\frac{1}{2}+779+238$
4. $6\frac{1}{4}+832+169$
5. $18\frac{3}{4}+32+75+99$
6. $6\frac{1}{4}+73+18\frac{3}{4}+76$
7. $87\frac{1}{2}+97+98+6\frac{1}{4}$
8. $37\frac{1}{2}+78+77+12\frac{1}{2}$

366. Find differences:

1. $18-12\frac{1}{2}$
2. $49-18\frac{3}{4}$
3. $62\frac{1}{2}-12\frac{1}{2}$
4. $82\frac{3}{4}-71\frac{1}{4}$
5. $69\frac{1}{2}-50\frac{1}{4}$
6. $87\frac{1}{2}-37\frac{1}{2}$
7. $7\,000-999$
8. $2\,505-777$
9. $18\frac{3}{4}-12\frac{1}{2}$

367. Find products:

1. 76×844
2. 67×796
3. 89×967
4. 78×679
5. 38×468
6. 47×689
7. 69×897
8. 97×679
9. $38\times41\times62$
10. $49\times67\times58$
11. $56\times48\times69$
12. $78\times87\times97$

368. Find quotients and remainders:

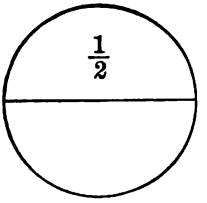
1. $1\,008\div18$
2. $2\,004\div29$
3. $6\,031\div47$
4. $3\,721\div37$
5. $1\,658\div42$
6. $2\,021\div39$
7. $4\,201\div71$
8. $7\,842\div69$
9. $8\,633\div97$
10. $1\,641\div88$
11. $1\,562\div79$
12. $2\,637\div39$

369. Find results:

1. $19\times201\div76$
2. $27\times743\div77$
3. $36\times684\div68$
4. $59\times398\div78$
5. $26\times328\div64$
6. $29\times283\div56$
7. $82\times197\div38$
8. $97\times276\div54$

FRACTIONS

370. Oral Questions.



1. Into how many parts is the circle divided? What is each part called?
2. How many are $\frac{1}{2}$ and $\frac{1}{2}$?
3. How many are $19\frac{1}{2}+20\frac{1}{2}$?
4. What is the sum of $3\frac{1}{2}$ and $2\frac{1}{2}$?
5. What is the difference between 3 and $2\frac{1}{2}$?
6. How much is $2\times\frac{1}{2}$? $4\times\frac{1}{2}$? $5\times\frac{1}{2}$?
7. If 2 girls share half an apple equally, what part of the apple does each girl get? $\frac{1}{2}\div 2=\frac{1}{4}$.

[In $\frac{1}{2}$, $\frac{3}{4}$, or any fraction, the number shown above the line is the Numerator, and the number shown below the line is the Denominator.]

371. Written Exercises.

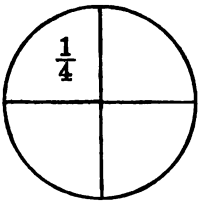
Find results:

1. $18+12\frac{1}{2}$	5. $4\times 2\frac{1}{4}$	9. $2\frac{1}{2}\times 20$
2. $9\times\ \frac{1}{2}$	6. $4\times 2\frac{1}{2}$	10. $7\frac{1}{2}\times 10$
3. $12-\ 3\frac{1}{2}$	7. $18-9\frac{1}{4}$	11. $2\ \div\ \frac{1}{2}$
4. $9+\ 4\frac{1}{4}$	8. $27\frac{1}{2}+13$	12. $20\times\ \frac{1}{2}$

372. Find results:

1. $17\frac{1}{2}-6$	4. $12\frac{1}{2}+12\frac{1}{2}$	7. $16-2\frac{1}{2}$
2. $17\frac{3}{4}-6\frac{1}{4}$	5. $4\ \times\ 3\frac{1}{2}$	8. $16-2\frac{1}{4}$
3. $17\frac{1}{2}-6\frac{1}{4}$	6. $4\ \times\ 3\frac{1}{4}$	9. $16-2\frac{3}{4}$

373. Oral Questions.



1. Into how many parts is the circle divided? What is each part called?

2. How many are $\frac{1}{4} + \frac{3}{4}$?

3. How many are $19\frac{1}{4} + 20\frac{3}{4}$?

4. What is twice $\frac{1}{4}$? 3 times $\frac{1}{4}$? 4 times $\frac{1}{4}$?

5. What is the difference between 3 and $2\frac{1}{4}$?

6. What is the sum of $3\frac{1}{4}$ and $2\frac{3}{4}$?

7. How many dollars would 8 quarters make? 8 times $\frac{1}{4} = ?$

8. If 2 boys divide $\frac{1}{4}$ of an apple equally, what part of the apple does each boy get? $\frac{1}{4} \div 2 = \frac{1}{8}$.

374. Written Exercises.

Find results:

1. $17 - 2\frac{1}{2}$	4. $17 + 2\frac{1}{2}$	7. $8 \times 2\frac{1}{2}$
2. $17 - 2\frac{1}{4}$	5. $17\frac{1}{2} + 2\frac{1}{2}$	8. $8 \times 2\frac{1}{4}$
3. $17 - 2\frac{3}{4}$	6. $17\frac{1}{4} + 2\frac{3}{4}$	9. $8 \times 3\frac{1}{4}$

375. Find results:

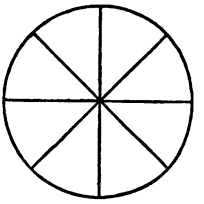
1. $24 - 4\frac{1}{2}$	4. $2\frac{1}{2} \times 2$	7. $20 - 2\frac{3}{4}$
2. $24 - 4\frac{1}{4}$	5. $2\frac{1}{2} \times 3$	8. $25 - 6\frac{3}{4}$
3. $24 - 4\frac{3}{4}$	6. $2\frac{1}{4} \times 3$	9. $29 - 8\frac{3}{4}$

10. $\frac{3}{4}$ of $8 = ?$

$\frac{1}{4}$ of $8 = 2$

$\frac{3}{4}$ of $8 = 3$ times $2 = 6$

376. Oral Questions.



1. Into how many parts is the circle divided? What is each part called?

2. How much of the circle are two of the parts? three of the parts?

3. How many of the parts make half the circle?

4. How many of the parts make $\frac{1}{4}$ of the circle?

5. If a pie is cut into 8 equal pieces, $\frac{3}{8}$ of the pie will give a piece each to how many children?

6. In $\frac{3}{8}$, which figure shows the numerator? Which figure shows the denominator?

7. In $\frac{3}{8}$ of a pie, which figure shows how many pieces? Which figure shows how large the piece is?

(The numerator shows how many parts are taken. The denominator shows the size of each part.)

377. Written Exercises.

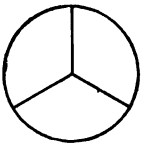
Find results:

1. $16\frac{1}{8} + 5\frac{3}{8}$
2. $16\frac{1}{8} + 5\frac{7}{8}$
3. $27\frac{7}{8} - 18\frac{7}{8}$
4. $17\frac{3}{4} - 17\frac{1}{4}$
5. $18 - 9\frac{1}{8}$
6. $18 - 9\frac{5}{8}$
7. $18 - 9\frac{3}{8}$
8. $18\frac{5}{8} - 9\frac{3}{8}$
9. $12\frac{1}{8} + 1\frac{7}{8}$
10. $13\frac{1}{8} - 9$
11. $4 \times 2\frac{1}{8}$
12. $5 \times 2\frac{1}{8}$

378. Find results:

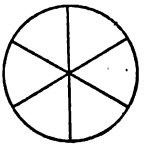
1. $6 \times 2\frac{1}{2}$
2. $7 \times 2\frac{1}{2}$
3. $9 \times 2\frac{1}{2}$
4. $20 - \frac{7}{8}$
5. $22 - 10\frac{7}{8}$
6. $32 - 12\frac{5}{8}$
7. $\frac{5}{8} + \frac{3}{8}$
8. $\frac{3}{8} + \frac{2}{8}$
9. $1\frac{3}{8} + \frac{2}{8}$

379. Oral Questions.



1. Into how many parts is the first circle divided? What is each part called?

2. Into how many parts is the second circle divided? What is each part called?



3. How many sixths in a circle? How many thirds? How many sixths make $\frac{1}{3}$? make $\frac{2}{3}$? How many sixths of the circle make half the circle?

4. What is the sum of $\frac{1}{3}$ and $\frac{2}{3}$?

5. What is the difference between $\frac{4}{6}$ and $\frac{2}{3}$? between $\frac{5}{6}$ and $\frac{2}{3}$?

6. How many thirds of an apple in 2 apples?

7. What is the sum of $\frac{1}{3}$ and $\frac{1}{6}$?

$\frac{1}{3} = \frac{2}{6}$; then $\frac{2}{6} + \frac{1}{6} = \frac{3}{6}$; and $\frac{3}{6} = \frac{1}{2}$.

380. Written Exercises.

Add:

1.	2.	3.	4.	5.
$18\frac{1}{3}$	$18\frac{1}{3}$	$18\frac{1}{3}$	$18\frac{1}{2}$	$18\frac{1}{4}$
$18\frac{1}{3}$	$18\frac{2}{3}$	$18\frac{1}{6}$	$9\frac{1}{4}$	$19\frac{1}{2}$

381. Subtract:

1.	2.	3.	4.	5.
$17\frac{1}{2}$	$17\frac{1}{3}$	$19\frac{1}{3}$	$19\frac{2}{3}$	$19\frac{1}{4}$
$9\frac{1}{4}$	$9\frac{1}{6}$	$9\frac{1}{6}$	$9\frac{1}{6}$	$9\frac{1}{8}$

6. $\frac{3}{6} - \frac{2}{6} =$ 7. $\frac{1}{3} - \frac{1}{6} =$ 8. $\frac{5}{6} - \frac{2}{3} =$

382. Oral Questions.

1. How many fourths of an apple are in half an apple?

2. How many sixths of an apple are in half an apple?

3. How many eighths of a pie are in half a pie?

4. How would you change half a pie into fourths of a pie?

5. What is the sum of $\frac{1}{2}$ and $\frac{1}{4}$? $\frac{1}{2}+\frac{1}{8}$? $\frac{1}{4}+\frac{1}{8}$?

6. To change $\frac{1}{4}$ to $\frac{2}{8}$, what do you multiply the numerator and denominator by?

7. To change $\frac{1}{2}$ to $\frac{4}{8}$ what do you multiply by?

8. What is the sum of $\frac{1}{2}$ and $\frac{1}{3}$?

$\frac{1}{3}=\frac{2}{6}$; and $\frac{1}{2}=\frac{3}{6}$; then $\frac{2}{6}+\frac{3}{6}=\frac{5}{6}$.

383. *To add or subtract fractions, the denominators must be alike.*

384. Oral Exercises.

Give results:

$10\frac{1}{4}+10\frac{1}{8}$	$21\frac{1}{3}+21\frac{1}{6}$	$\frac{1}{6}+\frac{1}{3}$	$\frac{1}{3}-\frac{1}{6}$
$10\frac{1}{4}+10\frac{3}{8}$	$21\frac{1}{4}+21\frac{1}{2}$	$\frac{1}{6}+\frac{2}{3}$	$\frac{2}{3}-\frac{1}{6}$
$10\frac{1}{4}+10\frac{5}{8}$	$21\frac{1}{4}+21\frac{1}{8}$	$\frac{1}{4}+\frac{1}{8}$	$\frac{1}{4}-\frac{1}{8}$

385. Give results:

$10\frac{1}{4}-10\frac{1}{8}$	$21\frac{1}{3}-21\frac{1}{6}$	$4\times 3\frac{1}{2}$	$40\frac{2}{3}\div 2$
$10\frac{3}{8}-10\frac{1}{4}$	$21\frac{1}{2}-21\frac{1}{4}$	$3\times 7\frac{1}{3}$	$50\frac{5}{6}\div 5$
$10\frac{5}{8}-10\frac{1}{4}$	$21\frac{3}{8}-21\frac{1}{4}$	$4\times 9\frac{1}{4}$	$60\frac{6}{7}\div 6$

386. Written Exercises.

Find sums:

1. $10\frac{1}{2}+13\frac{1}{4}$
2. $16\frac{1}{2}+14\frac{1}{6}$
3. $24\frac{1}{6}+30\frac{1}{3}$
4. $17\frac{2}{3}+19\frac{1}{6}$
5. $17\frac{1}{4}+19\frac{1}{8}+27$
6. $15\frac{1}{4}+19\frac{3}{8}+19$
7. $16\frac{1}{4}+19\frac{5}{8}+45$
8. $27\frac{1}{3}+27\frac{1}{6}+28$

387. Find differences:

1. $19\frac{1}{4}-17\frac{1}{8}$
2. $19\frac{3}{8}-15\frac{1}{4}$
3. $19\frac{5}{8}-16\frac{1}{4}$
4. $27\frac{1}{3}-27\frac{1}{6}$
5. $27\frac{2}{3}-27\frac{1}{6}$
6. $30\frac{1}{3}-24\frac{1}{6}$
7. $30\frac{2}{3}-24\frac{1}{6}$
8. $16\frac{1}{2}-16\frac{1}{6}$
9. $10\frac{1}{2}-10\frac{1}{4}$
10. $10\frac{1}{2}-9\frac{1}{8}$
11. $10\frac{3}{8}-9\frac{1}{4}$
12. $10\frac{5}{8}-3\frac{1}{4}$

388. Find products:

1. $6\times21\frac{1}{2}$
2. $5\frac{1}{2}\times20$
3. $4\times16\frac{1}{4}$
4. $4\frac{1}{4}\times16$
5. $3\times5\frac{1}{3}$
6. $3\frac{1}{3}\times6$
7. $4\frac{1}{8}\times16$
8. $5\frac{1}{8}\times24$
9. $7\frac{1}{3}\times21$
10. $8\frac{1}{6}\times48$
11. $7\frac{1}{8}\times40$
12. $16\times7\frac{1}{8}$

389. Find results:

1. $147\frac{7}{8}\div7$
2. $\frac{1}{8}$ of 200
3. $\frac{1}{3}$ of 300
4. $\frac{2}{3}$ of 300
5. $185\frac{5}{6}\div5$
6. $\frac{1}{4}$ of 200
7. $\frac{3}{4}$ of 200
8. $\frac{2}{3}$ of 600
9. $999\frac{9}{10}\div9$
10. $\frac{1}{6}$ of 600
11. $\frac{5}{6}$ of 600
12. $\frac{2}{3}$ of 660

390. Find results:

1. $5\times6\frac{1}{5}$
2. $6\times8\frac{1}{6}$
3. $8\times8\frac{1}{4}$
4. $\frac{2}{3}$ of 300
5. $\frac{2}{3}$ of 600
6. $\frac{2}{3}$ of 660
7. $\frac{3}{4}$ of 400
8. $\frac{3}{4}$ of 480
9. $\frac{3}{4}$ of 520

391. Oral Problems.

1. Four boys shared equally half a watermelon; what part of the melon did each boy get?

2. Three girls ate half a pie; how much to each?

3. A man has in one pocket \$15 in paper money, and in another $4\frac{1}{2}$ dollars in silver; how much in both pockets?

4. A man has \$10, and owes five dollars and a half; how much will he have after he pays what he owes?

5. John has $\$7\frac{1}{4}$, and Henry owes him $\$2\frac{3}{4}$; how much would John have if Henry had paid the debt?

6. A dollar was divided equally among 5 boys; what fraction of a dollar did each get?

7. If among 4 cows half a bushel of meal is equally divided, what part of a bushel does each cow get? What part of a bushel do 3 cows get?

8. How many eggs are $\frac{1}{3}$ of a dozen? $\frac{2}{3}$ of a dozen? $\frac{1}{6}$ of a dozen? $\frac{1}{12}$ of a dozen? $\frac{1}{4}$ of a dozen?

9. How many cents is $\frac{1}{4}$ of a dollar? $\frac{1}{5}$ of a dollar? $\frac{2}{5}$ of a dollar? $\frac{4}{5}$ of a dollar? $\frac{3}{4}$ of a dollar?

10. How many cents is $\frac{1}{5}$ of a dime? $\frac{2}{5}$ of a dime? $\frac{3}{5}$ of a dime? $\frac{4}{5}$ of a dime?

11. Four quarts are what part of a peck? three quarts? two quarts? one quart?

12. Henry is 7 years old, and is $\frac{1}{6}$ as old as his father; how old is Henry's father?

13. How many tenths make one fifth?

UNITED STATES MONEY

392. Written Problems.

1. Add \$1.35, \$6.82, \$14.05.

2. A man bought a cow for \$19, and sold her so as to gain \$5.50. What did he get for the cow?

3. A merchant sold a bale of cotton for \$47.82, and gained \$1.35; what had he paid?

4. A farmer sold 15 sheep at \$7.50 a head; how much did he get for them?

5. At \$.22 a dozen, how many dozen eggs can be bought for \$3.85?

6. \$.70 + \$1.05
7. \$.65 + \$2.10
8. \$.75 + \$4.25
9. 73 × \$1.85
10. 98 × \$2.17
11. 36 × \$4.25
12. \$ 3.96 ÷ 18
13. \$10.25 ÷ 25
14. \$21.75 ÷ 75

393. Oral Questions. — Decimals.

1. What part of a dollar is a dime?
2. What part of a dime is a cent?
3. What part of a dollar is a cent?

394. One hundredth may be written $\frac{1}{100}$, or .01. \$.01 means one hundredth of a dollar, or one cent. .01 means one hundredth, and is read "One hundredth," unless the dollar sign is before it. Tenths, hundredths, and thousandths are Decimals.

4. How many hundredths of a dollar make half a dollar?

5. How many cents in $\frac{3}{5}$ of a dollar?

6. What part of a dollar is 23 cents? 19 cents? 31 cents?

7. In $\frac{9}{10}$ of a dollar how many hundredths of a dollar?

8. In the number 55, the 5 on the left means what? what does the 5 on the right mean? In 55.5 what does the decimal 5 mean?

395. Written Exercises.

1. $.35+.65+.87$	2. 86×4.22	3. $6.93\div33$
4. $.98+.37+1.23$	5. 97×3.86	6. $10.25\div25$
7. $.88+.96+2.20$	8. 43×7.97	9. $21.75\div75$

396. Oral Exercises.

1. Read: \$10.50; \$9.07; \$18.01; \$250.22.
2. Read: 10.56; 9.67; 8.15; 30.2.
3. Add: \$10.50, \$9.50, \$10.05.
4. Add: $10\frac{50}{100}$, $9\frac{50}{100}$, $10\frac{5}{100}$.
5. Add: 10.5, 9.5.
6. Add: $.5+.5+.5+.5$.
7. Subtract .5 from 1; from 2; from 3; from 4.
8. Multiply 50 cents by 2; by 4; by 6.
9. Multiply .5 by 2; by 4; by 6.

397. Written Exercises.

1. Add: $ 9.75, $18.20, $310.15, $615.85
2. Add: 16.05, 27.21, 7.59, 3.36
3. Add: 13.5, 17.56

13.5
17.56

1.	2.	3.	4.
$130.05	156.5	$725.20	100.05
$217.68	318.01	$628.45	167.3
$540.07	219.78	$900.00	28.1
$319.50	16.52	$350.80	350.8

398. Find remainders:

1.	2.	3.	4.
$130.05	216.59	$820.70	360
$122.87	17.5	$550.50	59.5

Find remainders:

1. $720.00 − $85.32
2. 13.55 − 12.5
3. $100 − $98.74
4. $618.15 − $99.25
5. 19.67 − 19.6
6. $550 − $37.98
7. $192.75 − $92.85
8. 75.77 − 75.05
9. $227 − $49.75

399. Find products:

1. 19 × $450.20
2. 38 × 40.15
3. 17 × $328.15
4. 27 × $800.05
5. 29 × 38.37
6. 19 × $217.25
7. 56 × $550.55
8. 25 × 50.1
9. 28 × $492.70

400. Find quotients:

1. $500. ÷ 20
2. 30.3 ÷ 3
3. 555.05 ÷ 5
4. $4.98 ÷ 6
5. 66.96 ÷ 6
6. 18.18 ÷ 9
7. $18.81 ÷ 9
8. 100.5 ÷ 5
9. 12.12 ÷ 12

401. Oral Problems.

1. If a watermelon be divided equally among 5 boys, what part of the melon does each boy get?

2. If a dollar be divided equally among 5 boys, how many hundredths of a dollar does each boy get?

3. How many hundredths of a dollar make $\$\frac{1}{2}$?

4. How many hundredths of a dollar make $\$\frac{3}{4}$?

5. What is the name of the coin that is equal to twenty-five hundredths of a dollar?

6. James had $\frac{10}{100}$ of a dollar, and John had $\frac{25}{100}$ of a dollar; how much money did both have?

7. Lucy has .15 of a dollar, and Mary has .35 of a dollar? How much do both have?

8. Charles has \$.15 in coins that are equal, and George has a nickel; how many coins do both have?

9. At \$.05 per quart, how many quarts of berries can be bought with \$1.05?

10. At \$.02 apiece what must be paid for 30 pencils?

11. If you pay six cents a day for ice, how much do you pay in 50 days?

12. If a man pays six cents interest on \$1, how much should he pay on \$100?

13. A man charges 5 cents an hour for the use of his bicycle; how much does he get for 10 hours' use of it?

14. A man charges 5 cents on every dollar for lending money; how much does he get for lending \$100?

402. Written Problems.

1. Find the cost of 75 horses at $150 a head.

2. Add $\frac{1}{2}$ and $\frac{1}{6}$.

3. Subtract the sum of $\frac{1}{2}$ and $\frac{3}{4}$ from $2\frac{1}{2}$.

4. At $10\frac{1}{2}$ cents a pound, what must be paid for a bale of cotton weighing 500 pounds?

5. Add the difference between $\frac{3}{4}$ and $\frac{1}{2}$ to $3\frac{1}{4}$.

6. If a train run $27\frac{1}{2}$ miles per hour, how far will it run in 32 hours?

7. Six soldiers share equally 4 pounds and a half of flour; how many ounces does each get?

8. How many steps, each 2 feet long, would a girl take in walking 100 yards?

9. If 4 gallons of milk cost $1.60, what is the price for a quart?

10. If a quart of milk sells for 10 cents, what is paid for $3\frac{1}{2}$ gallons?

11. A steamer goes down the river and comes back; in going down she makes 14 miles per hour for 20 hours; in coming up she makes 7 miles per hour for 40 hours; what is the whole distance?

12. If a man walk 22 miles a day, how far will he walk in $5\frac{1}{2}$ days?

13. D borrowed $462, and paid 5 cents interest for every dollar borrowed; how much interest did he pay?

14. A man hires a horse and buggy at $2.50 per day; what is the charge for 6 days' use?

403. Written Exercises.

Find sums:

1.	2.	3.	4.
709.5	413.15	1 618.72	$30.05
31.62	768.1	4 853.02	17.50
378.78	25.93	6 750.43	29.83
268.01	901.2	2 968.5	14.75

404. Find remainders:

1. 4 030 − 1 987
2. 6 172 − 5 899
3. 2 323 − 1 939
4. 1 801 − 792
5. 6 230 − 4 167
6. 3 818 − 2 919
7. 7 262 − 6 868
8. 2 010 − 1 947
9. $18.36 − $ 7.25
10. $40.05 − $ 8.50
11. $16.30 − $10.75
12. $ 7.20 − $ 6.75

405. Find products:

1. 495 × 678
2. 349 × 567
3. 768 × 607
4. 836 × 793
5. 175 × $500
6. 225 × $750
7. 375 × $800
8. 625 × $900
9. 500 × $7.50
10. 600 × $9.25
11. 700 × $9.75
12. 800 × $8.25

406. Find quotients:

1. 104 907 ÷ 289
2. 108 537 ÷ 363
3. 104 152 ÷ 376
4. $350.25 ÷ 25
5. $600.75 ÷ 75
6. $900.15 ÷ 15
7. 110 763 ÷ 397
8. 133 408 ÷ 379
9. 154 822 ÷ 398

407. Find results:

1. 45 + 62 − 99
2. 88 + 74 − 97
3. 87 + 67 − 98
4. 53 × 48 × 39
5. 47 × 56 × 83
6. 65 × 38 × 79
7. 46 × 82 ÷ 24
8. 68 × 76 ÷ 38
9. 72 × 69 ÷ 23

CHAPTER VI

COMMON FRACTIONS — DECIMALS — DENOMINATE NUMBERS — PER CENTS — SQUARES AND RECTANGLES

COMMON FRACTIONS

408. Oral Questions.

1. What part of a dollar is a dime?
2. What part of a bushel is a peck?
3. What part of a yard is a foot?

409. When a unit is divided into equal parts, one or more of the parts is called a Fraction.

4. How many times is $\frac{1}{2}$ contained in 1? in 5?
5. How many times is $\frac{1}{3}$ contained in 1? in 3? in 5?
6. How many halves are in $2\frac{1}{2}$? in $3\frac{1}{2}$? in 1?

410. A fraction whose numerator exceeds or equals its denominator is called an Improper Fraction, as $\frac{5}{2}$, $\frac{7}{2}$, $\frac{2}{2}$.

A fraction whose numerator is less than its denominator is called a Proper Fraction, as $\frac{1}{2}$, $\frac{2}{3}$.

A number composed of a whole number and a fraction, is called a Mixed Number, as $2\frac{1}{2}$, $18\frac{3}{4}$.

411. Oral Questions.

1. How many quarters of a dollar are equal to half a dollar? How many fourths equal a half?

2. How many halves equal $\frac{4}{4}$? $\frac{6}{4}$? $\frac{8}{4}$? $\frac{10}{4}$?

3. What improper fraction equals $1\frac{1}{2}$?

4. Give quarters in change for half a dollar: how many quarters?

5. Change 4 to halves: how many halves in 4?

6. What mixed number equals $\frac{8}{2}$?

7. What improper fraction equals $2\frac{1}{4}$?

8. Reduce 7 to fourths: how many fourths in 7?

412. Written Exercises.

How many fourths in 52? in $52\frac{3}{4}$?

In 1 there are 4 fourths.

In 52 there are 52 times 4 fourths = 208 fourths.

$1 = \frac{4}{4}$

$52 = 52 \times \frac{4}{4} = \frac{208}{4}$

The sum of 208 fourths and 3 fourths is 211 fourths.

$\frac{208}{4} + \frac{3}{4} = \frac{211}{4}$

413. Reduce to improper fractions:

1. $6\frac{1}{4}$	2. $7\frac{1}{2}$	3. $18\frac{3}{4}$	4. $6\frac{2}{3}$
5. $12\frac{1}{2}$	6. $31\frac{1}{4}$	7. $37\frac{1}{2}$	8. $16\frac{2}{3}$
9. $3\frac{3}{4}$	10. $62\frac{1}{2}$	11. $3\frac{1}{3}$	12. $33\frac{1}{3}$

414. To reduce a mixed number to an improper fraction:

To the given fraction add the whole number reduced to a like fraction.

415. Oral Drills.

Give quotients:

$20 \div 4$	$120 \div 4$	$400 \div 2$	$120 \div 12$
$40 \div 4$	$140 \div 4$	$400 \div 4$	$120 \div 6$
$60 \div 4$	$160 \div 4$	$400 \div 8$	$120 \div 3$
$80 \div 4$	$180 \div 4$	$400 \div 16$	$240 \div 6$
$100 \div 4$	$200 \div 4$	$400 \div 40$	$240 \div 12$

416. Give sums:

$120 + 80$	$125 + 50$	$140 + 60$	$33 + 17$
$120 + 90$	$125 + 75$	$240 + 60$	$133 + 17$
$120 + 100$	$225 + 75$	$340 + 60$	$233 + 17$
$120 + 110$	$325 + 75$	$440 + 60$	$333 + 17$
$120 + 120$	$425 + 75$	$450 + 60$	$433 + 17$

417. Give remainders:

$200 - 25$	$90 - 45$	$100 - 55$	$150 - 75$
$175 - 25$	$190 - 45$	$200 - 55$	$250 - 75$
$150 - 25$	$290 - 45$	$300 - 55$	$350 - 75$
$125 - 25$	$390 - 45$	$400 - 55$	$450 - 75$
$75 - 25$	$490 - 45$	$500 - 55$	$550 - 75$

418. Give products:

20×10	30×10	40×10	50×10
20×20	30×20	40×20	50×20
20×40	30×40	40×40	50×30
20×50	30×50	40×50	50×50
20×100	30×100	40×200	50×60

419. Written Problems.

1. An orchard has 140 peach-trees, 68 pear-trees, 42 apple-trees, and 87 trees of other fruits; how many trees in all?

2. In an orchard there are 28 rows of trees, 42 trees to a row: how many trees in all?

3. Find the difference between eighteen thousand seventy-five, and seventy thousand four.

4. A man who gives $4 for 16 pounds of beef, pays how much per pound?

5. If a ship sails 15 miles an hour, how far does she sail from 6 A. M. to 6 P. M.?

6. What must be paid for 35 sheep at $9.75 a head?

7. There are 14 horses in a stable and 4 times as many in the street; how many horses in all?

8. A farmer owns 200 acres of land, and his neighbor owns 50 acres more than twice as much; how much land do both own? $(50+3\times200.)$

9. A man rode horseback 19 miles and 15 times as far on the cars; how far did he ride? $(16\times19.)$

10. A man bought 15 quarter-pound packages of soda: how many pounds did he buy?

11. A company owned $13\frac{1}{4}$ blocks of ground; how many quarter-blocks?

12. At 20 cents a peck, what must be paid for $6\frac{1}{4}$ bushels of potatoes?

420. Oral Questions.

1. How many quarters could you get for a 5-dollar bill?
2. How many fourths in 1? in 5? in 20?
3. How many quarts are in 2 gallons and a quart?
4. How many fourths are in $2\frac{1}{4}$?

421. Written Exercises.

Reduce $\frac{209}{4}$ to a mixed number.

$$\frac{209}{4} = 209 \div 4 = 52\frac{1}{4}$$

Reduce to whole or mixed numbers:

1. $\frac{56}{4}$	2. $\frac{18}{5}$	3. $\frac{26}{5}$	4. $\frac{57}{8}$
5. $\frac{28}{8}$	6. $\frac{27}{8}$	7. $\frac{16}{8}$	8. $\frac{182}{8}$
9. $\frac{71}{2}$	10. $\frac{47}{8}$	11. $\frac{44}{3}$	12. $\frac{181}{4}$

422. To reduce an improper fraction to a whole or a mixed number:

Divide the numerator of the fraction by the denominator.

423. Oral Drills.

Reduce (1) to improper fractions; (2) to mixed numbers:

(1)	$2\frac{1}{2}$	$12\frac{1}{2}$	$6\frac{1}{4}$	$31\frac{1}{4}$	$3\frac{1}{3}$	$16\frac{2}{3}$	$22\frac{1}{2}$	$62\frac{1}{2}$
	$7\frac{1}{2}$	$17\frac{1}{2}$	$18\frac{3}{4}$	$43\frac{3}{4}$	$6\frac{2}{3}$	$33\frac{1}{3}$	$37\frac{1}{2}$	$87\frac{1}{2}$
(2)	$\frac{5}{2}$	$\frac{25}{2}$	$\frac{25}{4}$	$\frac{125}{4}$	$\frac{10}{3}$	$\frac{50}{3}$	$\frac{45}{2}$	$\frac{125}{2}$
	$\frac{15}{2}$	$\frac{35}{2}$	$\frac{75}{4}$	$\frac{175}{4}$	$\frac{20}{3}$	$\frac{100}{3}$	$\frac{75}{2}$	$\frac{175}{2}$

424. Written Problems. — Review.

1. One watermelon vine bore 12 melons, averaging 10 pounds; another vine bore only half as many melons, but they averaged 25 pounds; how many pounds did the melons from both vines weigh?

2. If a 60-acre field produces yearly a bale of cotton to every 3 acres for the first 5 years, and a bale of cotton to every 4 acres for the second 5 years, how many bales does the field produce in the 10 years?

3. A field of wheat yielded 50 bushels to every 3 acres; the total yield was 450 bushels; how many acres were in the wheat-field?

4. A farmer raised 21 bushels of corn per acre on 7 acres; at 56 pounds to the bushel, how many pounds of corn did he raise?

5. A miller ground 147 bushels of corn per day for 67 days; how many bushels in all?

6. A farmer sold a bale of cotton for $52.50, and 10 bushels of potatoes at $.65 per bushel. How much was left after he had paid for 2 pairs of shoes at $1.50 per pair, for a sack of salt at $.90, and for a saddle at $9?

7. A farmer raised 32 bushels of oats per acre on 9 acres; at 32 pounds to the bushel, how many pounds did he raise?

8. If each of 306 iron castings weighs $\frac{1}{9}$ of a ton, what is the weight of all?

9. At 5 cents a quart, what must be paid for $3\frac{3}{8}$ pecks of tomatoes?

425. Written Exercises.

Reduce to improper fractions:

1. $103\frac{1}{2}$	2. $274\frac{5}{6}$	3. $227\frac{5}{9}$	4. $191\frac{1}{10}$
5. $39\frac{2}{3}$	6. $217\frac{5}{8}$	7. $357\frac{7}{8}$	8. $347\frac{7}{10}$
9. $137\frac{3}{8}$	10. $201\frac{3}{4}$	11. $314\frac{3}{8}$	12. $618\frac{7}{9}$
13. $98\frac{8}{5}$	14. $315\frac{2}{3}$	15. $129\frac{2}{3}$	16. $118\frac{4}{9}$

426. Reduce to whole or mixed numbers:

1. $\frac{493}{5}$	2. $\frac{209}{10}$	3. $\frac{617}{9}$	4. $\frac{1\,561}{16}$
5. $\frac{528}{6}$	6. $\frac{143}{4}$	7. $\frac{513}{7}$	8. $\frac{3\,124}{32}$
9. $\frac{427}{8}$	10. $\frac{371}{3}$	11. $\frac{203}{6}$	12. $\frac{145}{8}$

427. Find sums:

1. $12\frac{1}{2}$	2. $6\frac{1}{4}$	3. $3\frac{1}{3}$	4. $18\frac{3}{4}$
$37\frac{1}{2}$	$18\frac{3}{4}$	$66\frac{2}{3}$	$37\frac{1}{2}$
190	742	918	529
1 500	2 100	2 250	657

428. Find differences:

1. $37\frac{1}{2}-12\frac{1}{2}$	2. $6\frac{2}{3}-3\frac{1}{3}$	3. $100-87\frac{1}{2}$
4. $87\frac{1}{2}-37\frac{1}{2}$	5. $66\frac{2}{3}-33\frac{1}{3}$	6. $100-37\frac{1}{2}$
7. $62\frac{1}{2}-25$	8. $75-12\frac{1}{2}$	9. $100-12\frac{1}{2}$
10. $87\frac{1}{2}-25$	11. $37\frac{1}{2}-6\frac{1}{4}$	12. $100-62\frac{1}{2}$
13. $87\frac{1}{2}-1\frac{1}{4}$	14. $25-6\frac{2}{3}$	15. $100-33\frac{1}{3}$
16. $125-87\frac{1}{2}$	17. $50-6\frac{2}{3}$	18. $100-66\frac{2}{3}$

ADDITION AND SUBTRACTION

429. Oral Questions.

1. If you have 8 quarters in one pocket and 9 quarters in another pocket, how much money have you in both?
2. How many fourths are $\frac{3}{4}+\frac{2}{4}$?
3. How many eighths are $\frac{1}{8}+\frac{2}{8}$?
4. How much more is $\frac{2}{3}$ than $\frac{1}{3}$?
5. How much more is $16\frac{2}{3}$ than $6\frac{1}{3}$?
6. How many fourths are equal to $\frac{1}{2}+\frac{1}{4}$?

430. Written Exercises.

1. Add $\frac{3}{8}$ and $\frac{5}{8}$. $\frac{3}{8}+\frac{5}{8}=\frac{8}{8}=1$
2. Add $\frac{3}{5}$ and $\frac{3}{5}$. $\frac{3}{5}+\frac{3}{5}=\frac{6}{5}=1\frac{1}{5}$
3. Add $\frac{3}{4}$ and $\frac{1}{2}$. $\frac{1}{2}=\frac{2}{4}$ $\frac{2}{4}+\frac{3}{4}=\frac{5}{4}=1\frac{1}{4}$
4. From $\frac{3}{4}$ subtract $\frac{3}{8}$. $\frac{3}{4}=\frac{6}{8}$; $\frac{6}{8}-\frac{3}{8}=\frac{3}{8}$
5. Add $12\frac{1}{2}$ and $6\frac{1}{4}$.

$$12\tfrac{1}{2}=12\tfrac{2}{4};\quad \begin{array}{r} 12\frac{2}{4} \\ 6\frac{1}{4} \\ \hline 18\frac{3}{4} \end{array}$$

6. Subtract $7\frac{1}{2}$ from $18\frac{3}{4}$.
7. Subtract $18\frac{3}{4}$ from $22\frac{1}{2}$.

$$22\tfrac{1}{2}=22\tfrac{2}{4}=21\tfrac{6}{4}$$
$$\begin{array}{r} 18\frac{3}{4} \\ \hline 3\frac{3}{4} \end{array}$$

431. Written Problems. — Review.

1. A man rode 1 000 miles in 3 days; the first day he rode 356 miles, the second day 290 miles, and how far on the third day?

2. A ship sailed 131 miles per day for 7 days, 129 miles per day for 6 days, and in 5 days more completed her voyage of 2 297 miles; how far did she sail in the last 5 days?

3. From a cistern containing 1 763 gallons of water, 47 gallons a day are used for watering the stock, and 59 gallons for all other purposes; how many gallons should be in the cistern at the end of 12 days?

4. A farmer's corn crop is 37 bushels to the acre on 43 acres; he needs for the year 72 bushels for meal, and 3 bushels per day for feeding stock; how many bushels can he afford to sell?

5. A train runs from A to B, 360 miles, in 17 hours, making 30 stops, averaging 4 minutes each; find the train's average rate of speed while running.

6. From three fields a farmer harvested 1 813 bushels of grain; he raised 27 bushels of corn per acre on 19 acres, 19 bushels of wheat per acre on 41 acres, and oats on the other field; how many bushels of oats did he gather?

7. In three bins there are $278\frac{3}{4}$ bushels, 500 bushels, and $652\frac{5}{8}$ bushels of wheat; how many bushels in all?

8. A man had $\$134\frac{1}{2}$, and spent $\$59\frac{3}{4}$; how much money did he then have?

432. Written Exercises.

Find sums:

1. $17\frac{1}{2}+15\frac{1}{4}$	2. $33\frac{1}{3}+7\frac{1}{6}$	3. $6\frac{2}{3}+5\frac{5}{6}$	4. $3\frac{1}{3}+8\frac{1}{12}$
5. $17\frac{1}{2}+15\frac{3}{4}$	6. $33\frac{1}{3}+7\frac{1}{9}$	7. $8\frac{3}{4}+8\frac{1}{8}$	8. $3\frac{1}{3}+7\frac{5}{12}$
9. $17\frac{1}{2}+15\frac{3}{8}$	10. $33\frac{1}{3}+7\frac{5}{6}$	11. $9\frac{3}{4}+8\frac{3}{8}$	12. $6\frac{2}{3}+6\frac{1}{12}$
13. $17\frac{1}{2}+15\frac{5}{8}$	14. $33\frac{1}{3}+7\frac{2}{9}$	15. $10\frac{3}{4}+8\frac{5}{8}$	16. $9\frac{1}{6}+7\frac{1}{12}$

433. Find remainders:

1. $10\frac{1}{2}-8\frac{1}{6}$	2. $17\frac{1}{2}-4\frac{5}{8}$	3. $10\frac{1}{8}-1\frac{1}{2}$	4. $7\frac{7}{9}-3\frac{2}{3}$
5. $12\frac{1}{2}-9\frac{3}{4}$	6. $16\frac{2}{3}-3\frac{1}{9}$	7. $26\frac{4}{9}-4\frac{1}{3}$	8. $6\frac{5}{9}-2\frac{1}{3}$
9. $16\frac{2}{8}-8\frac{1}{6}$	10. $19\frac{3}{4}-12\frac{3}{8}$	11. $18\frac{2}{3}-3\frac{1}{9}$	12. $4\frac{1}{4}-3\frac{1}{12}$
13. $15\frac{3}{4}-4\frac{7}{8}$	14. $20\frac{5}{8}-4\frac{1}{4}$	15. $17\frac{5}{6}-8\frac{1}{3}$	16. $4\frac{1}{4}-2\frac{7}{12}$

FACTORS

434. Oral Questions.

1. What two numbers multiplied together make 6?

2. What two numbers multiplied together make 9? make 15? make 25? 35? 21?

435. The numbers that make a product are called its Factors.

3. When you divide 20 by 10 what figure do you cancel in 20?

$$\frac{2\times\cancel{10}}{1\times\cancel{10}}=\frac{2}{1}=2$$

or, $\frac{2\cancel{0}}{1\cancel{0}}=\frac{2}{1}=2$, or $10\overline{)2\cancel{0}}$

436. Written Exercises.

1. Cancel the factors common to the dividend and divisor in $\frac{25}{30}$.

$$\frac{25}{30}=\frac{\cancel{5}\times 5}{\cancel{5}\times 6}=\frac{5}{6}$$

2. When you cancel the factors common to the numerator and denominator in $\frac{75}{100}$, you reduce the fraction to its lowest terms.

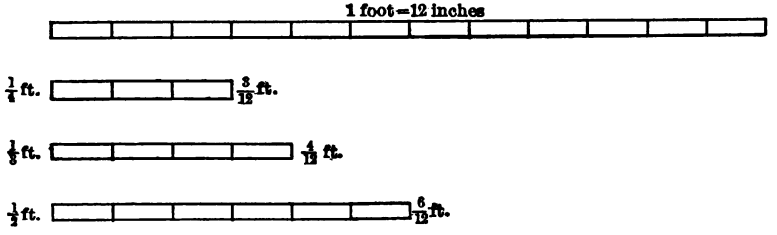
$$\frac{75}{100}=\frac{\cancel{5}\times\cancel{5}\times 3}{\cancel{5}\times\cancel{5}\times 4}=\frac{3}{4}$$

Reduce to lowest terms:

3. $\frac{30}{60}$ 4. $\frac{45}{50}$ 5. $\frac{35}{50}$ 6. $\frac{10}{15}$ 7. $\frac{8}{12}$ 8. $\frac{6}{9}$ 9. $\frac{2}{4}$

437. To reduce a fraction to its lowest terms: Cancel the factors common to the terms of the fraction.

COMMON DENOMINATORS



438. Oral Questions.

1. What part of a foot equals 1 inch? 2 inches? 3 inches? 4 inches? 6 inches? 11 inches?

2. What part of a foot equals 5 inches?

3. 5 inches + 1 inch would be what part of a foot?

4. What part of a foot equals: 1 inch + 5 inches? 1 inch? 4 inches? 4 inches − 1 inch? 3 inches + 4 inches?

5. What part of a foot equals: $\frac{1}{2}$ foot + 1 inch? $\frac{1}{2}$ ft. + 3 in.? $\frac{1}{2}$ ft. + 5 in.?

6. What part of a foot equals: $\frac{1}{2}$ ft. − $\frac{1}{3}$ ft.? $\frac{1}{2}$ ft. + $\frac{1}{4}$ ft.? $\frac{1}{4}$ ft. + $\frac{1}{3}$ ft.?

7. What measure is equal to $\frac{1}{4}$ ft. + $\frac{1}{4}$ ft. + $\frac{1}{2}$ ft.?

8. What number equals $\frac{1}{4} + \frac{1}{4} + \frac{1}{2}$?

9. What fraction equals $\frac{1}{4} + \frac{1}{3}$?

The least denominator common to $\frac{1}{4}$, $\frac{1}{3}$, is 12; $3 \times 4 = 12$.

The least denominator common to $\frac{1}{4}$, $\frac{1}{3}$, and $\frac{1}{2}$, is 12 . . . not 24, because, if 4 is a factor of a number, 2 also is a factor of the number. 12 may be divided by 2, by 3, by 4, and by 6.

439. Written Exercises.

Add $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{3}$.

$\frac{2}{4} + \frac{1}{4} = \frac{3}{4}$; $\frac{3}{4} + \frac{1}{3}$ = how many twelfths?

1. $\frac{2}{3} + \frac{1}{2} + \frac{1}{4}$	2. $\frac{1}{2} + \frac{1}{4} + \frac{1}{8}$	3. $\frac{1}{2} + \frac{2}{3} - \frac{1}{8}$
4. $\frac{1}{2} + \frac{1}{3} + \frac{3}{4}$	5. $\frac{1}{2} + \frac{1}{3} + \frac{1}{8}$	6. $\frac{1}{2} + \frac{3}{4} - \frac{1}{8}$
7. $\frac{3}{4} + \frac{1}{8} - \frac{1}{2}$	8. $\frac{2}{3} + \frac{5}{6} - \frac{3}{4}$	9. $\frac{2}{3} + \frac{3}{4} - \frac{7}{8}$

If the result is an improper fraction, it should be reduced to a whole or mixed number.

440. Oral Exercises. Give sums:

$16\frac{1}{2} + 17\frac{1}{2}$	$17\frac{1}{2} + 18\frac{1}{4}$	$20\frac{1}{2} + 20\frac{3}{4}$
$17\frac{1}{2} + 18\frac{1}{2}$	$18\frac{1}{2} + 19\frac{1}{4}$	$20\frac{3}{4} + 20\frac{3}{4}$
$16\frac{1}{4} + 17\frac{1}{4}$	$17\frac{1}{4} + 18\frac{1}{8}$	$20\frac{3}{8} + 20\frac{5}{8}$
$17\frac{1}{4} + 18\frac{1}{4}$	$18\frac{1}{4} + 19\frac{1}{8}$	$20\frac{1}{4} + 20\frac{3}{8}$

441. Give sums:

$\frac{1}{2}+\frac{3}{4}$	$\frac{2}{3}+\frac{1}{2}$	$\frac{1}{6}+\frac{1}{8}$	$\frac{3}{8}+\frac{3}{4}$
$\frac{1}{3}+\frac{1}{6}$	$\frac{2}{3}+\frac{1}{6}$	$\frac{2}{3}+\frac{1}{4}$	$\frac{5}{8}+\frac{3}{4}$
$\frac{1}{4}+\frac{3}{8}$	$\frac{3}{4}+\frac{1}{8}$	$\frac{3}{4}+\frac{3}{4}$	$\frac{7}{8}+\frac{3}{4}$

442. Give remainders:

$\frac{3}{4}-\frac{1}{2}$	$\frac{3}{8}-\frac{1}{4}$	$\frac{1}{2}-\frac{3}{8}$
$2\frac{3}{4}-2\frac{1}{2}$	$2\frac{3}{8}-2\frac{1}{4}$	$2\frac{1}{2}-1\frac{3}{8}$
$5\frac{3}{4}-5\frac{1}{2}$	$3\frac{3}{8}-2\frac{1}{4}$	$3\frac{1}{2}-1\frac{3}{8}$
$10\frac{3}{4}-10\frac{1}{2}$	$6\frac{3}{8}-4\frac{1}{4}$	$6\frac{1}{2}-2\frac{3}{8}$

443. Give remainders:

$\frac{7}{8}-\frac{3}{4}$	$\frac{9}{10}-\frac{2}{5}$	$\frac{1}{5}-\frac{1}{10}$	$\frac{4}{5}-\frac{8}{10}$
$\frac{5}{6}-\frac{1}{3}$	$\frac{7}{10}-\frac{2}{5}$	$\frac{3}{10}-\frac{2}{5}$	$\frac{3}{5}-\frac{3}{10}$
$\frac{5}{6}-\frac{2}{3}$	$\frac{4}{5}-\frac{7}{10}$	$\frac{9}{10}-\frac{4}{5}$	$\frac{2}{5}-\frac{1}{10}$

444. To add fractions having different denominators:

Reduce the fractions to fractions having the least common denominator. Write the sum of the new numerators over the common denominator.

To subtract fractions having different denominators:

Reduce the fractions to fractions having the least common denominator. Write the difference of the new numerators over the common denominator.

MULTIPLICATION

445. Oral Questions.

1. How much money is $\frac{1}{2}$ of 50 cents?

2. If each boy has $\frac{1}{2}$ quart of chestnuts, how many quarts do 4 boys have? 8 boys? 12 boys? 13 boys?

3. If a man work for $\$1\frac{1}{4}$ a day, how much will he earn in 2 days? In 3 days? In 4 days?

4. What is $\frac{1}{3}$ of 3? $\frac{1}{3}$ of 6? $\frac{1}{3}\times 9$? $\frac{1}{3}\times 12$?

(After a fraction the sign ($\times$) is read *of*.)

5. What part of a dollar is $\frac{1}{2}$ of $\frac{1}{2}$ of a dollar?

6. How many eighths are $8\times\frac{3}{8}$?

7. What is $\frac{3}{8}$ of 8?

446. Written Exercises.

Multiply $\frac{3}{8}$ by 4, or 4 by $\frac{3}{8}$.

4 times $\frac{3}{8}=\frac{12}{8}=1\frac{4}{8}=1\frac{1}{2}$

or; $4\times\frac{3}{8}=\frac{12}{8}=1\frac{4}{8}=1\frac{1}{2}$

Multiplying the numerator multiplies the fraction.
Dividing the denominator multiplies the fraction.

1. $\frac{2}{3}\times 90$	2. $\frac{2}{5}\times 25$	3. $\frac{5}{6}\times 24$	4. $20\times\frac{3}{10}$
5. $\frac{2}{3}\times 96$	6. $\frac{3}{5}\times 40$	7. $\frac{2}{9}\times 18$	8. $16\times\frac{3}{4}$
9. $\frac{3}{4}\times 80$	10. $\frac{7}{8}\times 40$	11. $\frac{7}{9}\times 36$	12. $32\times\frac{5}{8}$

447. Multiply $3\frac{3}{4}$ by 11.

11 times $\frac{3}{4}=\frac{33}{4}=8\frac{1}{4}$
11 times $3=\quad 33$
$11\times 3\frac{3}{4}=\quad 41\frac{1}{4}$

or, $3\frac{3}{4}$
$\underline{\quad 11}$
$8\frac{1}{4}$
33
$\underline{41\frac{1}{4}}$

1. $16\frac{1}{2}$ by 8 2. $7\times14\frac{2}{5}$ 3. $9\times33\frac{1}{3}$ 4. $5\times4\frac{3}{10}$
5. $16\frac{1}{2}$ by 9 6. $8\times14\frac{2}{7}$ 7. $9\times66\frac{2}{3}$ 8. $6\times5\frac{1}{5}$
9. $20\frac{3}{4}$ by 4 10. $12\times12\frac{1}{2}$ 11. $8\times18\frac{3}{4}$ 12. $8\times7\frac{3}{8}$

448. Written Problems.

1. Find the cost of $12\frac{1}{2}$ bushels of corn at 60 cents a bushel.

2. If a bushel of oats weighs 32 pounds, what is the weight of $6\frac{1}{4}$ bushels?

3. At the rate of $3\frac{3}{8}$ miles per hour, how far will a man walk in 4 hours?

4. When sugar sells at 6 cents per pound, what must be paid for $37\frac{1}{2}$ pounds?

5. A man bought 12 tons of hay at $\$18\frac{3}{4}$ per ton; what did he pay?

6. If a man step $2\frac{1}{3}$ feet, how far will he walk in 150 steps?

449.

Multiply: $\frac{2}{3}\times\frac{6}{7}$. $\frac{1}{3}$ of $\frac{6}{7}=\frac{2}{7}$; $2\times\frac{2}{7}=\frac{4}{7}$

Multiply: $\frac{2}{3}\times\frac{6}{7}$. $\frac{2\times6}{3\times7}=\frac{12}{21}=\frac{2\times2\times\cancel{3}}{7\times\cancel{3}}=\frac{4}{7}$

Multiply. Cancel when possible.

1. $\frac{2}{3}\times\frac{6}{7}$ 2. $\frac{4}{5}\times\frac{3}{7}$ 3. $\frac{9}{10}\times\frac{3}{4}$ 4. $\frac{6}{7}\times\frac{3}{8}$
5. $\frac{3}{4}\times\frac{4}{5}$ 6. $\frac{2}{3}\times\frac{2}{7}$ 7. $\frac{7}{8}\times\frac{3}{5}$ 8. $\frac{2}{5}\times\frac{5}{8}$
9. $\frac{3}{5}\times\frac{10}{21}$ 10. $\frac{5}{6}\times\frac{9}{20}$ 11. $\frac{7}{8}\times\frac{16}{21}$ 12. $\frac{8}{9}\times\frac{3}{16}$
13. $\frac{2}{3}\times\frac{3}{4}\times\frac{4}{5}$ 14. $\frac{5}{6}\times\frac{7}{8}\times\frac{2}{5}$ 15. $\frac{5}{6}\times\frac{3}{5}\times\frac{8}{9}$

450.

Multiply $1\frac{1}{4}$ by $2\frac{3}{8}$.

$$1\tfrac{1}{4}=\tfrac{5}{4};\ 2\tfrac{3}{8}=\tfrac{8}{8};\ \tfrac{5}{4}\times\tfrac{8}{8}=?$$

1. $1\frac{1}{8}\times3\frac{3}{7}$	2. $2\frac{3}{4}\times 6\frac{1}{8}$	3. $5\frac{1}{7}\times2\frac{1}{7}$
4. $10\frac{1}{2}\times4\frac{2}{3}$	5. $16\frac{2}{3}\times 9\frac{3}{8}$	6. $11\frac{5}{9}\times11\frac{7}{8}$
7. $3\frac{1}{3}\times6\frac{3}{4}$	8. $12\frac{1}{2}\times16\frac{2}{3}$	9. $66\frac{2}{3}\times18\frac{3}{4}$

In all work in fractions, results should be given in the lowest terms.

451. To multiply fractions:

Reduce each whole number or mixed number to the form of an improper fraction.

Multiply the numerators together for a new numerator.

Multiply the denominators together for a new denominator.

DIVISION

452. Oral Exercises.

1. What is $\frac{1}{4}$ of 1? What is $1\div4$?
2. What is $\frac{1}{2}$ of 2? What is $2\div2$?
3. What is $\frac{1}{3}$ of 6? What is $6\div3$?
4. What is $\frac{1}{2}$ of $\frac{1}{2}$? What is $\frac{1}{2}\div2$?
5. What is half of $10\frac{1}{2}$? half of \$10.50? \$10.50 $\div$ 2? $10\frac{1}{2}\div2$?

453. Written Exercises.

Divide:

1. $12\frac{1}{2} \div 2$ 2. $18\frac{3}{4} \div 3$ 3. $30\frac{5}{8} \div 5$
4. $8\frac{4}{9} \div 2$ 5. $66\frac{2}{3} \div 2$ 6. $24\frac{4}{9} \div 4$

Divide $782\frac{2}{5}$ by 5.

$5)\underline{782\frac{2}{5}}$

$156 + (2\frac{2}{5} \div 5) = 156\frac{4}{5}$

$2\frac{2}{5} \div 5 = \frac{2}{5}\frac{0}{} \div 5$; $5)\frac{2}{5}\frac{0}{} = \frac{4}{5}$

Divide $860\frac{1}{2}$ by 5.

$5)\underline{860\frac{1}{2}}$

$172 + (\frac{1}{2} \div 5) = 172\frac{1}{10}$

$\frac{1}{2} \div 5 = \frac{1}{5} \times \frac{1}{2} = \frac{1}{10}$

Dividing the numerator divides the fraction.

Multiplying the denominator divides the fraction.

454. Divide: $12 \div \frac{1}{2}$ $12 = \frac{24}{2}$

$\frac{24}{2} \div \frac{1}{2} = 24 \div 1 = 24$

1. $14 \div \frac{1}{2}$ 2. $24 \div \frac{1}{6}$ 3. $32 \div \frac{1}{8}$
4. $15 \div \frac{1}{3}$ 5. $28 \div \frac{1}{7}$ 6. $36 \div \frac{1}{9}$
7. $16 \div \frac{1}{4}$ 8. $30 \div \frac{1}{5}$ 9. $40 \div \frac{1}{10}$

455. Divide: $12 \div \frac{3}{4}$ $12 = \frac{48}{4}$

$\frac{48}{4} \div \frac{3}{4} = 48 \div 3 = 16$

1. $18 \div \frac{3}{4}$ 2. $30 \div \frac{5}{6}$ 3. $20 \div \frac{5}{9}$
4. $16 \div \frac{2}{3}$ 5. $42 \div \frac{3}{8}$ 6. $18 \div \frac{3}{10}$
7. $20 \div \frac{4}{5}$ 8. $18 \div \frac{2}{7}$ 9. $84 \div \frac{7}{12}$

456. Written Exercises.

Divide $\frac{3}{8}$ by $\frac{4}{5}$:

$\frac{3}{8} \div \frac{4}{5} = \frac{15}{40} \div \frac{32}{40}$

15 fortieths $\div$ 32 fortieths $= 15 \div 32 = \frac{15}{32}$

1. $\frac{5}{8} \div \frac{5}{6}$
2. $\frac{3}{7} \div \frac{3}{8}$
3. $\frac{3}{4} \div \frac{5}{8}$
4. $\frac{2}{3} \div \frac{5}{8}$
5. $\frac{3}{4} \div \frac{7}{16}$
6. $\frac{7}{8} \div \frac{2}{3}$
7. $\frac{4}{9} \div \frac{2}{3}$
8. $\frac{5}{6} \div \frac{7}{12}$
9. $\frac{5}{9} \div \frac{8}{16}$

457. Divide $12\frac{1}{2}$ by $3\frac{2}{3}$:

$12\frac{1}{2} \div 3\frac{2}{3} = \frac{25}{2} \div \frac{11}{3}$

$\frac{25}{2} \div \frac{11}{3} = \frac{75}{6} \div \frac{22}{6} = 75 \div 22 = \frac{75}{22} = 3\frac{9}{22}$

1. $6\frac{1}{4} \div 1\frac{1}{3}$
2. $2\frac{1}{4} \div 1\frac{1}{3}$
3. $3\frac{1}{3} \div 2\frac{1}{4}$
4. $12\frac{1}{2} \div 6\frac{1}{3}$
5. $18\frac{3}{4} \div 12\frac{1}{2}$
6. $9\frac{3}{7} \div 3\frac{2}{5}$
7. $37\frac{1}{2} \div 6\frac{1}{4}$
8. $66\frac{2}{3} \div 12\frac{1}{2}$
9. $66\frac{2}{3} \div 87\frac{1}{2}$

458. To divide fractions:

Reduce the dividend and divisor to fractions having the least common denominator.

Divide the numerator of the dividend by the numerator of the divisor.

459. Oral Exercises.

Give quotients:

$\frac{4}{9} \div \frac{1}{2}$	$\frac{2}{3} \div \frac{1}{4}$	$\frac{3}{4} \div \frac{1}{2}$	$\frac{8}{10} \div \frac{1}{10}$
$\frac{2}{3} \div \frac{1}{2}$	$\frac{2}{3} \div \frac{1}{8}$	$\frac{3}{4} \div \frac{1}{4}$	$\frac{8}{10} \div \frac{1}{5}$
$\frac{1}{3} \div \frac{2}{3}$	$\frac{2}{3} \div \frac{1}{6}$	$\frac{3}{4} \div \frac{3}{4}$	$\frac{8}{10} \div \frac{2}{5}$

460. Give quotients:

$2 \div \frac{1}{2}$	$4 \div \frac{1}{2}$	$4 \div \frac{2}{3}$
$12\frac{1}{2} \div 2$	$20\frac{4}{5} \div 4$	$4\frac{2}{3} \div 2$
$3 \div \frac{1}{3}$	$8 \div \frac{1}{2}$	$6 \div \frac{3}{4}$
$18\frac{3}{4} \div 3$	$30\frac{5}{6} \div 5$	$12\frac{3}{8} \div 3$
$4 \div \frac{1}{4}$	$10 \div \frac{1}{2}$	$12 \div \frac{3}{4}$
$15\frac{5}{8} \div 5$	$36\frac{6}{7} \div 6$	$12\frac{3}{5} \div 4$

461. Give products:

$4 \times 1\frac{1}{4}$	$5 \times 3\frac{1}{5}$	$5 \times 2\frac{2}{5}$
$\frac{1}{2} \times \frac{3}{4}$	$\frac{3}{4} \times \frac{1}{8}$	$\frac{2}{5} \times \frac{3}{4}$
$4 \times 2\frac{1}{2}$	$5 \times 6\frac{1}{5}$	$3 \times 3\frac{2}{3}$
$\frac{2}{3} \times \frac{1}{4}$	$\frac{5}{8} \times \frac{1}{4}$	$\frac{3}{5} \times \frac{2}{4}$
$4 \times 6\frac{1}{4}$	$6 \times 7\frac{1}{6}$	$4 \times 1\frac{3}{4}$
$\frac{3}{8} \times \frac{1}{2}$	$\frac{7}{8} \times \frac{1}{2}$	$\frac{4}{5} \times \frac{3}{4}$
$4 \times 12\frac{1}{2}$	$7 \times 8\frac{1}{7}$	$5 \times 10\frac{2}{5}$

462. Give results:

$1\frac{1}{2} \times 8$	$4\frac{1}{2} \times 7$	$10\frac{1}{2} \times 20$
$\frac{7}{8} - \frac{3}{4}$	$\frac{5}{6} - \frac{1}{3}$	$\frac{3}{5} - \frac{3}{10}$
$8 \div 2\frac{1}{2}$	$20 \div 6\frac{2}{3}$	$40 \div 6\frac{2}{3}$
$7\frac{1}{2} + 7\frac{3}{4}$	$1\frac{3}{8} + 1\frac{1}{4}$	$7\frac{3}{4} + 6\frac{3}{4}$
$8 \times 2\frac{1}{2}$	$3 \times 6\frac{2}{3}$	$15 \times 6\frac{2}{3}$

463. Written Exercises.

Find results:

1. $\frac{1}{8}+\frac{5}{6}$	2. $\frac{5}{6}-\frac{1}{4}$	3. $2\frac{3}{4}\times 1\frac{2}{9}$	4. $4\frac{3}{8}\div 3\frac{2}{5}$
5. $\frac{3}{8}+\frac{5}{6}$	6. $\frac{5}{6}-\frac{3}{4}$	7. $3\frac{3}{4}\times 4\frac{5}{6}$	8. $3\frac{3}{8}\div 1\frac{4}{5}$
9. $\frac{2}{3}+\frac{2}{7}$	10. $\frac{2}{3}-\frac{3}{8}$	11. $1\frac{5}{6}\times 2\frac{2}{3}$	12. $7\frac{5}{8}\div 6\frac{2}{3}$
13. $\frac{3}{4}+\frac{1}{10}$	14. $\frac{3}{4}-\frac{1}{3}$	15. $6\frac{7}{8}\times 4\frac{2}{3}$	16. $10\frac{7}{8}\div 1\frac{5}{6}$

464. Written Problems.

1. A merchant sold 1 877 boxes of strawberries, each box being $\frac{1}{24}$ of a crate; how many crates of berries did he sell?

2. A man worked $\frac{5}{12}$ of his garden on Monday, and $\frac{8}{15}$ of it on Tuesday; what part of his garden did he work both days?

3. In one bin there are $178\frac{3}{4}$ bushels wheat, in another $50\frac{1}{2}$ bushels, in a third $352\frac{5}{8}$ bushels; how many bushels in the three bins?

4. A field is $\frac{15}{16}$ of a mile long, and $\frac{7}{12}$ of a mile wide; how much greater is its length than its breadth?

5. A merchant sold to two customers $\frac{35}{40}$ of a bolt of jeans; to one he sold $\frac{3}{4}$ of the bolt; what part of the bolt did he sell to the other?

6. A man had $\$134\frac{1}{2}$, and spent $\$59\frac{3}{4}$; how much money did he then have?

7. Mary walks $\frac{3}{4}$ of a mile to school; how many miles in five days, going and coming once per day?

8. A wagoner hauls at each load $1\frac{5}{6}$ of a ton; how many tons does he haul in 24 loads?

9. If a horse eats $1\frac{5}{8}$ bushels of corn per week, how many bushels does he eat in 52 weeks?

10. A clerk drew $\frac{3}{4}$ of his month's salary; he spent $\frac{1}{3}$ of the money for clothing, and placed $\frac{2}{3}$ of it in bank; what part of his month's salary did he place in bank?

11. In 3 days a farmer plowed $\frac{5}{7}$ of a field; what part of the field did he average per day?

12. If 3 pounds of butter cost $\frac{9}{20}$ of a dollar, what does 1 pound cost?

13. A train ran $\frac{1}{10}$ of a mile in 8 seconds; how far did it run per second?

14. A cook uses $\frac{3}{4}$ of a pound of butter per day; in how many days will she use 40 pounds of butter?

15. A farmer raised $\frac{2}{3}$ of a bale of cotton per acre on a field which produced 29 bales; how many acres were in the field?

16. If $\frac{7}{8}$ of a dollar will buy a bushel of wheat, how many bushels can be bought for 50 dollars?

17. A bushel of oats weighs $\frac{4}{7}$ of the weight of a bushel of corn; how many bushels of oats will weigh as much as 100 bushels of corn?

DECIMAL FRACTIONS

465. Oral Questions.

1. What fraction of a dollar is a cent? 3 cents?
2. What fraction of a dollar is 7 cents? 9 cents?
3. What fraction of $1 is $.15? $.17? $.19?
4. What part of $1.00 is $.13? $.9? $.01?
5. In $.11 how many tenths and hundredths of $1?
6. In $.22 how many tenths and hundredths of $1?
7. In .22 how many tenths and hundredths of a unit?
8. In $1.02 how many dollars and cents?
9. In 1.02 how many units and hundredths?
10. In $1.20 how many dollars and dimes?
11. In 1.2 how many units and tenths?

466. Table of U. S. Money and Decimal Table.

10 mills = 1 cent ($.01). (1) 1 unit = 10 tenths.
10 cents = 1 dime ($.10). (0.1) 1 tenth = 10 hundredths.
10 dimes = 1 dollar ($1). (0.01) 1 hundredth = 10 thousandths.

467. Read the following:

.02	.1	.53	1.1	1.05
.03	.12	.05	1.01	2.1
.3	.22	.06	1.02	3.21
.43	.32	.15	1.22	4.22
.54	.42	.26	1.32	5.02
.65	.52	.37	1.03	6.002

468. Written Problems.

Review carefully the written work on page 175.

469. Oral Questions.

Review carefully the oral work on page 176.

470. Written Exercises.

Express decimally:

1. $1\frac{1}{10}$; $\frac{2}{10}$; $1\frac{3}{10}$; $\frac{4}{10}$; $1\frac{5}{10}$; $\frac{6}{10}$; $1\frac{7}{10}$; $\frac{8}{10}$; $1\frac{9}{10}$; $1\frac{1}{100}$.
2. $1\frac{19}{100}$; $1\frac{9}{100}$; $\frac{99}{100}$; $1\frac{999}{1000}$; $1\frac{99}{1000}$; $\frac{95}{1000}$; $1\frac{9}{1000}$.
3. $10\frac{9}{100}$; $\frac{9}{1000}$; $10\frac{9}{10}$; $10\frac{5}{100}$; $\frac{15}{1000}$; $10\frac{85}{1000}$.
4. Ten and four hundred fifteen thousandths.
5. Ten and four hundred five thousandths.

471. The fourth decimal order is called ten-thousandths.

Express decimally:

6. $101\frac{101}{1000}$; $101\frac{1}{100}$; $101\frac{1}{10}$; $101\frac{11}{100}$; $101\frac{111}{1000}$; $101\frac{1111}{10000}$.
7. $101\frac{1}{10}$; $101\frac{1}{100}$; $101\frac{1}{1000}$; $101\frac{1}{10000}$; $101\frac{11}{10000}$; $101\frac{111}{10000}$.
8. Eleven and eleven ten-thousandths.
9. Eleven and one hundred one ten-thousandths.

The fifth decimal order is called hundred-thousandths.

10. $101\frac{101}{100000}$; $101\frac{1101}{100000}$; $101\frac{11101}{100000}$; $101\frac{1}{100000}$.

The sixth decimal order is called millionths.

11. $22\frac{1011}{1000000}$; $33\frac{10111}{1000000}$; $44\frac{101111}{1000000}$; $55\frac{111101}{1000000}$.

472. Written Exercises.

Find sums:

1.	2.	3.	4.
$123.05	$981.25	$1 732.10	$423.23
272.18	763.33	2 840.25	860.40
650.24	821.05	638.75	219.75
901.75	16.50	19.00	530.25
238.60	.25	1.62	187.78
$.	$.	$.	$.

473. Find remainders:

1. $2 360.05 − $1 987.75
2. $5 275.14 − $3 729.25
3. $6 842.21 − $2 592.05
4. $2 840. − $2 775.80
5. $7 308.00 − $3 250.25
6. $5 124.60 − $1 313.75
7. $1 600.00 − $1 327.62
8. $3 112.15 − $ 700.
9. $2 500. − $ 986.75
10. $4 206. − $3 910.90

474. Find products:

1. 24 × $764.25
2. 35 × $718.62
3. 203 × $500.
4. 25 × $806.05
5. 45 × $450.15
6. 304 × $650.20
7. 51 × $210.75
8. 36 × $181.75
9. 208 × $515.75
10. 62 × $317.20
11. 29 × $390.40
12. 98 × $420.05
13. 75 × $ 98.16
14. 37 × $810.
15. 76 × $630.25

475. Find quotients:

1. $525.75 ÷ 25
2. $542.25 ÷ 75
3. $109.80 ÷ $ .09
4. $650.25 ÷ 25
5. $900.00 ÷ 75
6. $270.36 ÷ $ .09
7. $900.00 ÷ 25
8. $601.50 ÷ 75
9. $504.00 ÷ $ .09
10. $875.75 ÷ 25
11. $303.75 ÷ 75
12. $816.25 ÷ $ .05
13. $300.50 ÷ 25
14. $216.54 ÷ 18
15. $800. ÷ $ .05

476. Oral Exercises.

Read:

1.1	12.1	13.2	14.4	16.5	20.7
1.01	2.1	3.02	4.04	5.05	6.06
1.001	2.001	3.002	4.004	5.015	6.11
1.12	2.12	3.13	4.14	5.15	6.16

ADDITION AND SUBTRACTION

477. Written Exercises.

1. A man spent \$4.15 for books, \$3.75 for a lamp, and \$6.25 for a chair; find the sum.

2. Find the sum of \$15.95, \$16.35, and \$18.72.

3. Add 1 and 8 tenths to 18 hundredths.

$$\begin{array}{r} .18 \\ 1.8 \\ \hline \end{array}$$

4. A man had \$50.00, and spent \$10.25; how much did he then have?

5. The receipts of a railroad company in one month amounted to \$2 134 349.73; the expenses for the month amounted to \$1 800 949.95; what was the net gain?

6. Subtract 18 hundredths from 1 and 8 tenths.

$$\begin{array}{r} 1.8 = 1.80 \\ .18 \\ \hline \end{array}$$

7. Subtract 18 thousandths from 18 hundredths.

8. Subtract 18 ten-thousandths from 18 thousandths.

9. Find the sum of 8 tenths, 9 hundredths, 89 thousandths, and 3 ten-thousandths.

10. Subtract, decimally, $2\frac{3}{10}$ from $3\frac{3}{1000}$.

11. Subtract, decimally, $2\frac{3}{10}$ from $3\frac{3}{10000}$.

12. Subtract 18 and three hundred four thousandths from 19 and seven tenths.

MULTIPLICATION

478. Written Exercises.

1. A man earned \$12.50 per week; how much in 10 weeks?

479. Each removal of the decimal point one place to the right multiplies a number by 10.

2. A bale of cotton was sold for \$48.10. Find the value of 100 such bales.

3. Find the value of 1 000 bushels of corn, at \$.60 per bushel.

4. Bought 18 pounds of beef, at \$.15 per pound, and 25 pounds of mutton, at \$.16 per pound. Paid with a \$5-note, and the balance in silver; how much silver?

5. *Nashville, Tenn., July 2, 1906.*

Mr. J. W. Jones,

Bought of F. R. RIVERS & CO.

12	*lb. Rice @ \$.07*		× ×		
133	*" A. Sugar @ .05*	×	× ×		
40	*" Rio Coffee @ .25*	× ×	× ×	*17*	*49*

Paid,

F. R. Rivers & Co.

480. Oral Problems.

1. At $2\frac{1}{2}$ cents a quart, what would be the cost of 6 quarts of oil?

2. At 2.5 cents a quart, what would be the cost of 12 quarts of oil?

3. At $12\frac{1}{2}$ cents a quart, what would be the cost of 6 quarts of vinegar?

4. At 12.5 cents a quart, what would be the cost of two quarts of vinegar?

5. At \$.25 a quart, what would be the cost of 4 quarts of cider?

6. A man earns $\$2\frac{3}{4}$ a day; how much in 4 days?

7. If a man earns \$1.75 a day, how much does he earn in 6 days?

8. If a man earns 3.75 dollars a day, how much does he earn in 2 days?

9. In one pocket a boy had \$.05, and in another pocket 10 cents; how much in both pockets?

10. A man paid 125 cents, \$.25, and $\frac{5}{100}$ of a dollar; how much did he pay?

11. A lady spent one day \$10.25, and the next day $\$3\frac{1}{4}$; how much more the first day?

12. A man sold a horse for \$125, and a cow for 22.25 dollars; what did he get for them?

13. How much more is 2.75 dollars than one dollar and five cents?

481. Written Exercises.

Copy, rule as a bill-head, find the amount, and receipt each bill below:

1. LOUISVILLE, KY., Apr. 28, 1906.

MRS. R. E. WILLIAMS,

Bought of H. E. & J. W. JOHNSON,

14 yd. prints	@	$ .06
2½ doz. hdkf.	@	2.00
18 yd. drilling	@	.09
22 yd. sheeting	@	.25

Received payment,

2. LITTLE ROCK, ARK., Oct. 9, 1906.

JAS. BROWN,

Bought of WILSON BROTHERS,

12 quires foolscap	@	$.25
12 " legal cap	@	.45
4 gross Gillott pens	@	1.25
12 doz. Faber pencils	@	.60
1 quart ink for		.50

Make receipted bills for the following articles, giving the names of buyers and sellers, dates of sales, etc., at pleasure:

3. Cotton-seed meal, 4 tons, at $21 per ton; corn, 30 bushels, at $.60 per bushel; oats, 26 bushels, at $.38 per bushel.

4. Coal: 10 tons hard coal, at $9.50; 18 tons soft coal, at $6.50.

5. Bacon: 76 lb. short clear sides, at $.09; 33 lb. short rib sides, at $.08; 98 lb. shoulders, at $.06.

482. Oral Drills.

Give sums:

$1.50 + .05$	$.75 + .05$	$1.75 + .75$
$.12\frac{1}{2} + .12\frac{1}{2}$	$.12\frac{1}{2} + .37\frac{1}{2}$	$1.12\frac{1}{2} + .87\frac{1}{2}$
$.37\frac{1}{2} + .87\frac{1}{2}$	$.62\frac{1}{2} + .37\frac{1}{2}$	$1.87\frac{1}{2} + 1.12\frac{1}{2}$
$.62\frac{1}{2} + .87\frac{1}{2}$	$.62\frac{1}{2} + .12\frac{1}{2}$	$1.37\frac{1}{2} + 1.62\frac{1}{2}$
$.875 + .875$	$.625 + .625$	$1.375 + 1.375$

483. Give remainders:

$.25 - .125$	$.75 - .125$	$1. - .125$
$1.25 - .125$	$.75 - .625$	$1.75 - .625$
$1.75 - .875$	$.75 - .375$	$.625 - .25$
$1.375 - .625$	$1.375 - .875$	$1.675 - .375$

484. Give products:

$4 \times .125$	$4 \times .375$	$4 \times .625$
$8 \times .125$	$8 \times .375$	$8 \times .625$
$2 \times .37\frac{1}{2}$	$2 \times .62\frac{1}{2}$	$2 \times .87\frac{1}{2}$
$10 \times .125$	$10 \times .375$	$10 \times .625$
$10 \times .12\frac{1}{2}$	$10 \times .37\frac{1}{2}$	$10 \times .62\frac{1}{2}$

485. Give quotients:

$.375 \div 3$	$.625 \div 5$	$.875 \div 7$
$.375 \div 5$	$.625 \div 25$	$.875 \div 25$
$.375 \div 125$	$.625 \div 125$	$.875 \div 125$
$3.75 \div 3$	$6.25 \div 5$	$8.75 \div 7$
$37.5 \div 3$	$62.5 \div 5$	$87.5 \div 7$
$375 \div 5$	$625 \div 5$	$875 \div 7$

DECIMALS MULTIPLIED BY DECIMALS

486.

1. Multiply $\frac{1}{10}$ by $\frac{1}{10}$. $\frac{1}{10} \times \frac{1}{10} = \frac{1}{100}$.
   Multiply $\frac{1}{10}$ by $\frac{1}{100}$. $\frac{1}{100} \times \frac{1}{10} = \frac{1}{1000}$.
   Multiply $\frac{1}{10}$ by $\frac{1}{1000}$. $\frac{1}{1000} \times \frac{1}{10} = \frac{1}{10000}$.

487. *The denominator of the product contains as many noughts as there are noughts in the denominators of the factors of the product.*

2. Multiply .1 by .1. $.1 \times .1 = .01$.
   Multiply .1 by .01. $.01 \times .1 = .001$.
   Multiply .1 by .001. $.001 \times .1 = .0001$.

488. *The product contains as many decimal places as there are decimal places in its factors.*

489. **Written Exercises.**

Find Products:

1.	1.25×2.5	2.	12.5×2.5	3.	12.55×2.5
4.	125.5×2.5	5.	1.255×2.5	6.	$1.255 \times .25$
7.	$17.56 \times .19$	8.	$.1255 \times .25$	9.	300.1×99.09

490. To multiply decimals:

Multiply as in whole numbers; point off in the product as many decimal places as there are decimal places in both factors, prefixing noughts when necessary.

491. Written Problems.

1. Three cars are loaded with 42 tons of freight; in one car there are 13.66 tons, in another 14.125 tons; how many tons in the third car?

2. A man walked $10\frac{7}{8}$ miles in 3 hours; the first hour he walked $3\frac{9}{16}$ miles, the second $3\frac{7}{8}$ miles; how far did he walk the third hour?

3. Find the cost of 16 cords of wood at \$3.75 a cord.

4. In 3 hours a river rose 7.3 feet; the first hour it rose 3.01 feet, the second hour 3.25 feet; how much the third hour?

5. The minuend is $27.19+13.5$; the subtrahend is $16.01+15.3$; what is the remainder?

6. If a freight train run 12.75 miles per hour, how far will it run in 2.9 hours?

7. The minuend is $42.375+56.15$; the subtrahend is $21.33+5.6$; what is the remainder?

8. John drew 14 buckets of water from the well each day for 28 days; if each bucketful was 2.875 gallons, how many gallons did he draw?

9. The minuend is $87\frac{1}{3}+12\frac{2}{3}$; the subtrahend is $16\frac{2}{3}+33\frac{1}{3}$; what is the remainder?

10. A man spent $\$6\frac{3}{4}$ for stationery, and $\$5\frac{9}{20}$ for books; find the sum.

11. A multiplicand is $170\frac{1}{4}$; the multiplier is $69\frac{3}{8}$; find the product.

DIVISION

492. Oral Drill.

1. How many times does 10 units contain 2 units?

How many times does:

2. 10 thousandths contain 2 thousandths?

3. 16 hundredths contain 2 hundredths?

4. 9 tenths contain 3 tenths?

5. 9 tenths ÷ 3 hundredths = ? 9 dimes ÷ 3 cents = ?

6. 1 dollar ÷ 1 dime = ? 7. 1 unit ÷ 1 tenth = ?

8. 1 unit ÷ 1 hundredth = ? 9. 1 tenth ÷ 1 hundredth = ?

10. 2 ÷ .02 = ? 11. 2 ÷ .002 = ?

493. Written Problems.

1. A farmer received $521.50 for 10 bales of cotton; what was the average value?

494. Each removal of the decimal point one place to the left divides a number by 10.

2. A merchant bought 100 bushels of oats for $33.00; find the price per bushel.

3. A boat made 114.75 miles in 9 hours; find her average speed per hour.

4. A ticket from D to H costs $7.95; the distance is 265 miles; find the cost per mile.

5. At \$.03 per mile a ticket from D to G costs \$9.45; find the distance.

6. How many times does \$12 contain 3 cents?

To the dividend annex as many noughts in decimal places as are required to equal the number of decimal places of the divisor.

$$.03\overline{)12.00}\quad 400$$

7. How many times does 4.2 contain .006?

495. Written Exercises.

1. $12.45 \div 3$	2. $12.45 \div .3$	3. $12.45 \div .03$
4. $16.8 \div 2.1$	5. $168 \div 2.1$	6. $40.32 \div 8$
7. $39.12 \div .03$	8. $20.16 \div .42$	9. $5.04 \div .21$

10. Multiply 5.45 by .016, and prove the work by dividing the product by the multiplicand.

$$\begin{array}{r} 5.45 \\ .016 \\ \hline 3270 \\ 545 \\ \hline .08720 \end{array} \qquad \begin{array}{r} 5.45\overline{)}.08720(.016 \\ 545 \\ \hline 3270 \\ 3270 \\ \hline \end{array}$$

496. To divide decimals by decimals:

Divide as in whole numbers.

Point off in the quotient as many decimal places as the number of decimal places in the dividend exceeds the number of decimal places in the divisor, prefixing noughts when necessary.

497. Oral Drills.

Give sums:

100 + .55	100 + 7.5	100 + .075
150 + 5.5	150 + .05	150 + .055
250 + 5.05	250 + .50	250 + .155
350 + 1.5	350 + .105	350 + 1.55

498. Give remainders:

100 − .55	100 − 7.5	100 − .05
150 − 4.5	150 − .05	150 − .1
250 − 5.5	250 − .5	250 − 1.5
350 − .7	350 − .07	100 − .005

499. Give products:

100 × .5	100 × 2.5	100 × .05
100 × .45	100 × 2.55	100 × .005
200 × .5	200 × .25	200 × .025
400 × .005	400 × .2	400 × 1.5

500. Give quotients:

100 ÷ 5	100 ÷ .5	100 ÷ .05
100 ÷ 25	100 ÷ 2.5	100 ÷ .25
100 ÷ .4	300 ÷ .04	100 ÷ .004
100 ÷ .1	100 ÷ .01	100 ÷ .001

501. Give results:

.2 × 200	.13 + 1.37	2.55 − .15
.05 × 200	.013 + .037	3.15 − 7.5
.005 × 200	1.13 + .37	4.01 − .5
200 × .01	213 + .037	23.2 − .15

PER CENTS

502. Oral Exercises.

1. What part of a dollar is 1 cent? 3 cents?
2. How many hundredths of a dollar is 9 cents?

Read: 3. Seven hundredths of one dollar.

4. $\frac{7}{100} \times \$1$. 5. $.07 \times \$1$. 6. 7 % of \$1.

503. $\frac{7}{100} \times \$1$, $.07 \times \$1$, and 7 % of \$1, all mean the same. The sign % is read *per cent*, and means hundredths.

7. How many hundredths of a dollar is a dime?
8. What per cent of a dollar is a nickel?
9. What per cent of 50 is 5? of 25 is 5?
10. Of what number is 6 six per cent?
11. Of what number is 5 ten per cent?
12. Of what number is 5 twenty per cent?

504. Written Exercises.

1. Find 5 per cent of 100. $(.05 \times 100)$

Find the following:

2. 6 % of 200	3. 7 % of 200	4. 8 % of 200
5. 12 % of 500	6. 15 % of 600	7. 20 % of 150
8. 25 % of 80	9. $12\frac{1}{2}$ % of 800	10. $6\frac{1}{4}$ % of 800

505. Written Problems.

1. A man borrows \$100 for a year at 5 %. How much does he pay for the use of the money?

5% of \$100 = .05 × \$100 = \$5.

The borrower pays \$5, and also pays back the \$100.

2. A man lends another \$100 for 2 years at 5 % per year. How much does the borrower pay for the use of the money?

$$2 \times .05 \times \$100 = ?$$

3. A man borrowed \$200 for a year, and at the end of the year paid \$10 for the use of the money; what per cent did he pay? $(\frac{10}{200} = \frac{5}{100} = 5\ \%.)$

4. A man bought a horse for \$100, and sold him for \$115; what per cent did he gain? $\frac{15}{100} = 15\ \%.$

5. There are 200 trees in an orchard and 47 % of them are apple-trees; how many apple-trees?

6. A dealer bought eggs at 20 cents a dozen and sold them at a profit of 50 %; what did he get a dozen?

7. Mr. Lewis borrowed \$500. By adding 4 % of \$500 to \$500, find what he paid at the end of the year.

8. Mr. Jones borrowed \$500 at 4 % a year. Find what he paid at the end of 6 months.

9. Mr. Smith borrowed \$600 at 5 % a year; adding 15 % of \$600 to \$600, find what he paid at the end of 3 years.

10. If 5 years is 50 % of a girl's age, how old is she?

11. If a man pays \$40 for a cow, and sells her for \$36, what per cent does he lose?

DENOMINATE NUMBERS

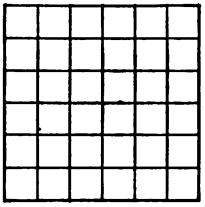
506. Oral Exercises.

1. Rule a square figure 6 inches to the side.

2. Rule lines across, 1 inch apart, as below.

3. Rule lines across the other way, 1 inch apart.

4. How many square inches are in the figure?



5. Six times 6 square inches are how many square inches?

6. Three times 3 square inches are how many square inches?

7. Ten times 10 square miles are how many square miles?

507. Written Problems.

1. A city block is 297½ feet square; how far is it around the block?

2. A brick is 8 inches long and 4 inches wide; how many such bricks would cover a table 32 inches square?

8 sq. in.	32 sq. in.	32
4	×32	32 sq. in.)1024 sq. in.
32 sq. in.	64	96
	96	64
	1024 sq. in.	64

3. Find the number of square inches in a sheet 66⅔ inches long and 54 inches wide.

4. A floor is 18 feet long and 14 feet wide; how many square feet in the floor?

508. Oral Drills.

How many inches?				How many feet?			
1.	$2\frac{1}{2}$ ft.	2.	1 yd.	3.	$3\frac{1}{3}$ yd.	4.	1 yd. 2 ft.
5.	$3\frac{1}{2}$ ft.	6.	$1\frac{1}{2}$ yd.	7.	$6\frac{2}{3}$ yd.	8.	4 yd. 1 ft.
9.	5 ft.	10.	2 yd.	11.	$16\frac{2}{3}$ yd.	12.	5 yd. 2 ft.
13.	10 ft.	14.	$2\frac{1}{2}$ yd.	15.	$33\frac{1}{3}$ yd.	16.	$5\frac{1}{2}$ yd.

509.

How many liquid quarts?				How many dry quarts?			
1.	$2\frac{1}{2}$ gal.	2.	$2\frac{3}{4}$ gal.	3.	1 bu.	4.	$1\frac{1}{2}$ pk.
5.	$12\frac{1}{2}$ gal.	6.	$4\frac{1}{2}$ gal.	7.	2 bu.	8.	$2\frac{1}{2}$ pk.
9.	$37\frac{1}{2}$ gal.	10.	$5\frac{1}{4}$ gal.	11.	3 bu.	12.	$3\frac{1}{2}$ pk.
13.	$62\frac{1}{2}$ gal.	14.	$6\frac{1}{4}$ gal.	15.	4 bu.	16.	$4\frac{1}{4}$ pk.

510.

How many hours?				How many days?			
1.	$1\frac{1}{2}$ days	2.	$2\frac{1}{12}$ days	3.	48 hr.	4.	8 wk.
5.	$2\frac{1}{2}$ days	6.	$4\frac{1}{6}$ days	7.	72 hr.	8.	9 wk.
9.	$3\frac{1}{2}$ days	10.	$8\frac{1}{3}$ days	11.	96 hr.	12.	10 wk.
13.	5 days	14.	$16\frac{2}{3}$ days	15.	120 hr.	16.	12 wk.
17.	1 wk.	18.	$33\frac{1}{3}$ days	19.	144 hr.	20.	$14\frac{2}{7}$ wk.

511.

How many ounces?				How many pounds?			
1.	$1\frac{1}{2}$ lb.	2.	$1\frac{1}{4}$ lb.	3.	32 oz.	4.	320 oz.
5.	$1\frac{3}{4}$ lb.	6.	$2\frac{1}{8}$ lb.	7.	48 oz.	8.	480 oz.
9.	$2\frac{1}{2}$ lb.	10.	$6\frac{1}{4}$ lb.	11.	24 oz.	12.	640 oz.
13.	$3\frac{1}{2}$ lb.	14.	$12\frac{1}{2}$ lb.	15.	80 oz.	16.	800 oz.
17.	5 lb.	18.	25 lb.	19.	160 oz.	20.	960 oz.

512. Written Problems.

1. A dairyman sold 12 gallons 3 quarts of milk; how many quarts did he sell?

2. From a barrel containing 27 gallons of vinegar, 5 gallons 3 quarts leaked out; how much was left?

3. A dairyman sold to each of four customers 2 gallons and 2 quarts of milk; how many gallons did he sell to the four?

4. Find the cost of 31 gallons 2 quarts of vinegar at $.09 a quart.

5. Mrs. C. buys every day 1 quart of milk at $.05 per pint; how much does she pay for milk in a common year?

6. How many gallons of milk does Mrs. C. buy in a year?

7. A cow gives 5 quarts of milk twice a day; how many gallons does she give in 20 days?

8. A farmer sold 6 bushels and 1 peck of corn to one man, and 3 bushels 3 pecks to another; how many bushels did he sell to both men?

9. A rope was cut into 4 pieces, each 13 feet 3 inches long; how long was the rope at first?

10. A farmer gave his horses 3 bushels and 2 pecks of corn in 2 days; how much per day?

11. Find the cost of 3 bushels 2 pecks of peanuts at $.06 per quart.

12. If a train run $\frac{5}{8}$ of a mile a minute, how far will it run in 1 hour?

PARTS OF A DOLLAR

513. Oral Exercises.

1. What part of a dollar is $12\frac{1}{2}$ cents? 25 cents? $33\frac{1}{3}$ cents? 50 cents? $62\frac{1}{2}$ cents? 75 cents? $87\frac{1}{2}$ cents?

2. At 4 to the dollar, or 25 cents apiece, give the cost of 16 chickens. $16 \times \$\frac{1}{4} = \$4$.

At 25 cents, give cost of:

40 handkerchiefs	76 pounds beef
60 caps	80 pounds coffee
50 dozen eggs	25 pigeons
30 pounds butter	28 fishing-lines
42 pineapples	31 brushes

514. At 50 cents, give cost of:

15 hens	150 books
25 rabbits	250 bushels corn
35 pounds tea	350 hoes
45 gallons vinegar	450 knives
75 pairs shears	750 hammers

515. At $12\frac{1}{2}$ cents, give cost of:

8 collars	80 yards muslin
16 dishes	240 cocoanuts
32 buckets	400 gallons oil
64 inkstands	120 pounds cheese
100 pounds bacon	30 bars soap

516. Oral Problems. — Review.

1. If 3 pounds of butter cost $\frac{9}{10}$ of a dollar, what is the cost per pound?

2. Put 14 ounces of salt into quarter-ounce papers; how many papers?

3. If a boy works for $\frac{1}{4}$ of a dollar a day, how much does he earn in 6 days?

4. How much corn do the chickens get in 8 days when they are given $2\frac{1}{2}$ quarts a day?

5. Around a square garden is 280 feet; how long is each side?

6. If $\frac{3}{4}$ of a dollar will pay for a bushel of wheat, how many bushels can be bought for 12 dollars?

7. A merchant paid $33 for 100 bushels of oats; at what price per bushel?

8. At 1 cent for every 2 ounces, what does it cost to send by mail a book weighing 2 pounds?

9. A man works for $15 a week; how much a day?

10. If $\frac{2}{3}$ of a farm is 100 acres, how many acres are in the farm?

11. A farmer sold $\frac{2}{3}$ of his corn and kept the rest, 600 bushels; how many bushels did he sell?

12. A man spent $3\frac{1}{4}$ for a hat, and twice as much for a coat; what did both cost?

13. If a ship sails 15 miles an hour, how far does she go in 40 minutes?

517. Written Problems. — Review.

1. Mr. Brown had \$12 in paper money, and \$$3\frac{1}{4}$ in coin; he spent \$$7\frac{3}{4}$; how much did he then have?

2. A farmer sowed a 50-acre field in grain of three kinds; $16\frac{2}{3}$ acres he sowed in wheat, $16\frac{2}{3}$ acres in oats, and how many acres in rye?

3. Three cars are loaded with 43 tons of freight; in one car there are $13\frac{6}{7}$ tons, in another $14\frac{1}{8}$ tons; how many tons in the third car?

4. Put 12.875 pounds of turnip-seed into ounce packages; how many packages?

5. In 3 hours a river rose $7\frac{3}{10}$ feet; the first hour it rose $3\frac{1}{6}$ feet, the second hour $3\frac{1}{5}$ feet; how much the third hour?

6. A quart of corn weighs $1\frac{3}{8}$ pounds, a quart of oats 1 pound, a quart of meal $1\frac{1}{2}$ pounds. A man feeds his horse on a mixture of meal, oats, and corn, one quart of each; how many pounds does he give the horse?

7. A farmer plowed $36\frac{7}{8}$ acres of land in three weeks; the first week he plowed $14\frac{1}{2}$ acres, the second week $13\frac{1}{12}$ acres; how many acres the third week?

8. A butcher had 2 quarters of beef; one weighed $73\frac{3}{4}$ pounds, the other $72\frac{3}{4}$ pounds; he sold $69\frac{1}{4}$ pounds in the forenoon, and the remainder in the afternoon; how many pounds did he sell in the afternoon?

9. The minuend is $42\frac{3}{8}+56\frac{7}{12}$; the subtrahend is $21\frac{1}{3}+5\frac{3}{5}$; what is the remainder?

10. A farmer raised 34 bushels of corn to the acre on a field of $21\frac{7}{8}$ acres; find the entire yield.

11. A train runs $22\frac{1}{2}$ miles per hour between two towns 265 miles apart; how many hours are required to make the whole distance?

12. A farmer had 397 acres in corn, cotton, and oats; he had $\frac{1}{3}$ of it in corn, and $\frac{1}{2}$ of it in cotton; how many acres did he have in oats?

13. Two farms sold for \$11 652. The smaller one contained 239 acres, and brought \$16 per acre; the other brought \$19 per acre; how many acres in the large farm?

14. A trader bought a plantation for \$14 per acre, and sold it for \$15 824, gaining \$2 per acre; find the amount he paid for the plantation.

15. How many pounds of sugar must a grocer sell in order to gain \$5.25, if he gains $\frac{1}{2}$ cent on every pound?

16. Make a receipted bill for the following: 14 barrels potatoes, at \$2.10; 3 barrels onions, at \$4.25; cow-peas, 16 bushels, at \$1.25; tomatoes, 4 bushels, at \$1.10; sweet potatoes, 12 bushels, at \$1.40.

17. If $6\frac{1}{4}$ yards of ribbon be cut into 3 equal pieces, what is the length of a piece?

18. The remainder is $16\frac{3}{5}$; the minuend is $17\frac{2}{9}$; what is the subtrahend?

19. The quotient is $\frac{2}{9}$; the dividend is $\frac{3}{4}$; what is the divisor?

20. The remainder is $1\frac{1}{3}$; the subtrahend is $2\frac{3}{4}$; what is the minuend?

CHAPTER VII

ALIQUOT PARTS — RATIO — FRACTIONS — DENOMINATE NUMBERS — PERCENTAGE — INTEREST

ALIQUOT PARTS

518. Oral Drill.

What part of 100 is each of the following numbers?

2	$3\frac{1}{3}$	4	5	$6\frac{1}{4}$	$6\frac{2}{3}$
$8\frac{1}{3}$	10	$11\frac{1}{9}$	$12\frac{1}{2}$	$14\frac{2}{7}$	$9\frac{1}{11}$
$16\frac{2}{3}$	20	25	$33\frac{1}{3}$	50	$7\frac{1}{7}$

519. Numbers that will divide 100 without a remainder are called Aliquot Parts of 100.

520. Written Problems.

1. A dealer pays \$125 for 1 000 dozen eggs; what do they cost per dozen? How many dozen to the dollar?

2. A hotel buys 300 chickens at 6 to the dollar; what do they all cost? How much apiece?

3. At 15 pounds to the dollar, what is the cost of 450 pounds of sugar? How much a pound?

4. At $16\frac{2}{3}$ cents, how many pounds of cheese can be bought for \$36? How many pounds to the dollar?

5. At 12½ cents a pair, $100 will pay for how many pairs of cotton gloves? How many pairs to the dollar?

6. At 15 to the dollar, what is paid for 300 cocoanuts? How much apiece?

7. At 9 to the dollar, how much would be paid for 180 bars of soap? How much apiece?

RATIO

521. Oral Questions.

1. Can you buy as many postage stamps with a dime as you can buy with a dollar? The dollar is how many times the dime? The stamps you buy with the dollar are how many times the stamps you buy with a dime?

2. What are 36 eggs worth if 12 eggs cost 20 ¢?

36 eggs are 3 times 12 eggs; therefore, the cost of 36 eggs is 3 times as great as the cost of 12 eggs.

3. What part of 36 eggs are 12 eggs?

12 eggs = $\frac{1}{3}\frac{2}{6}$ of 36 eggs = $\frac{1}{3}$ of 36 eggs;
Or, as a ratio, 12 eggs are to 36 eggs as 1 is to 3.

522. The Ratio of 36 to 12 is 3, because 36 is 3 times as great as 12. The Ratio of 12 to 36 is $\frac{1}{3}$, because 12 is $\frac{1}{3}$ as great as 36.

The sign of Ratio is the colon (:); it means division.

4. Five yards ÷ 10 yards = ?

5. Five yards is to 10 yards as 1 is to what number?

6. What is the ratio of 6 to 18? of 18 to 6? of $3\frac{1}{3}$ to $16\frac{2}{3}$? of 100 to $12\frac{1}{2}$?

523. Written Problems.

1. How far should a train run in 9 hours if in 3 hours it run 100 miles?

The ratio of 9 hours to 3 hours is 3.
The ratio of —— miles to 100 miles is 3.
Or, Since the ratio is 3, the train will run 3×100 miles.

2. What is the cost of 50 bushels of corn, when 10 bushels cost \$6?

50 bu. : 10 bu. = 5. Therefore, 50 bushels will cost 5 times \$6.

3. In what time can a man walk 25 miles at the rate of $2\frac{1}{2}$ miles in 1 hour?

4. Find the cost of 36 yards of cloth at the rate of 3 yards for a dollar.

5. How much will 24 fish cost at the rate of 3 for 50 cents?

6. For every four apples you pay 10 cents; for 48 apples you pay how much?

7. How much will 75 birds cost, at the rate of 3 birds for 25 cents?

8. How many bushels of corn can be had for 63 bushels of oats at the rate of 7 bushels of oats to 4 bushels of corn? $(\frac{4}{7} \times 63)$

9. How much does a dealer gain on 200 barrels of flour when on every eight barrels he gains $1.50?

10. What does it cost to ride 100 miles at the rate of $16\frac{2}{3}$ miles for 50 cents?

11. A train is to run 450 miles; how long will it take at the rate of 75 miles in 2 hours?

12. A man earns $180, his wages being $9 for 6 days' work; how many days does he work?

13. A dealer sorts 1 000 oranges; in every 5 oranges 4 are sound; how many should he sell?

524. Oral Drill.

What part of 100 is each of the following?

75	$18\frac{3}{4}$	$62\frac{1}{2}$	$66\frac{2}{3}$	$41\frac{2}{3}$
$7\frac{1}{2}$	$37\frac{1}{2}$	$31\frac{1}{4}$	$87\frac{1}{2}$	$83\frac{1}{3}$

525. Written Exercises.

Find the cost of:

1. 400 pocket-knives at $.75 (4 to $3)
2. 360 bushels of corn at $41\frac{2}{3}$ (12 to $5)
3. 60 pairs of leather gloves at $.66\frac{2}{3}$
4. 600 gross of pens at $.83\frac{1}{3}$
5. 800 bushels of oats at $.31\frac{1}{4}$
6. 160 pounds of tea at $.37\frac{1}{2}$
7. 100 pounds of paper at $.07\frac{1}{2}$
8. 8 000 bushels of wheat at $.62\frac{1}{2}$

526. Oral Drills.

Give sums:

$83\frac{1}{3}+16\frac{2}{3}$	$87\frac{1}{2}+62\frac{1}{2}$	$66\frac{2}{3}+66\frac{2}{3}$
$16\frac{2}{3}+25$	$37\frac{1}{2}+62\frac{1}{2}$	$66\frac{2}{3}+33\frac{1}{3}$
$37\frac{1}{2}+37\frac{1}{2}$	$87\frac{1}{2}+37\frac{1}{2}$	$31\frac{1}{4}+18\frac{3}{4}$
$41\frac{2}{3}+41\frac{2}{3}$	$33\frac{1}{3}+16\frac{2}{3}$	$87\frac{1}{2}+87\frac{1}{2}$
$31\frac{1}{4}+31\frac{1}{4}$	$83\frac{1}{3}+83\frac{1}{3}$	$37\frac{1}{2}+25$

527. Give remainders:

$87\frac{1}{2}-12\frac{1}{2}$	$66\frac{2}{3}-33\frac{1}{3}$	$100-33\frac{1}{3}$
$87\frac{1}{2}-25$	$66\frac{2}{3}-16\frac{2}{3}$	$100-62\frac{1}{2}$
$83\frac{1}{3}-33\frac{1}{3}$	$83\frac{1}{3}-66\frac{1}{3}$	$100-18\frac{3}{4}$
$75\ -37\frac{1}{2}$	$37\frac{1}{2}-\ 6\frac{1}{4}$	$100-37\frac{1}{2}$
$83\frac{1}{3}-16\frac{2}{3}$	$87\frac{1}{2}-37\frac{1}{2}$	$125-37\frac{1}{2}$

528. Give products:

$2\times37\frac{1}{2}$	$3\times83\frac{1}{3}$	$4\times62\frac{1}{2}$
$2\times87\frac{1}{2}$	$3\times66\frac{2}{3}$	$4\times18\frac{3}{4}$
$3\times16\frac{2}{3}$	$4\times87\frac{1}{2}$	$5\times33\frac{1}{3}$
$4\times37\frac{1}{2}$	$5\times\ 6\frac{1}{4}$	$6\times33\frac{1}{3}$
$6\times16\frac{2}{3}$	$7\times14\frac{2}{3}$	$8\times62\frac{1}{2}$

529. Give quotients:

$100\div33\frac{1}{3}$	$200\div66\frac{2}{3}$	$500\div83\frac{1}{3}$
$100\div12\frac{1}{2}$	$150\div37\frac{1}{2}$	$500\div41\frac{2}{3}$
$100\div16\frac{2}{3}$	$250\div62\frac{1}{2}$	$125\div31\frac{1}{4}$
$100\div\ 6\frac{1}{2}$	$150\div18\frac{3}{4}$	$100\div\ 8\frac{1}{3}$
$100\div14\frac{2}{7}$	$100\div\ 6\frac{2}{3}$	$100\div11\frac{1}{9}$

FRACTIONS

REVIEW OF ADDITION AND SUBTRACTION

530. Written Problems.

1. A farmer raised $217\frac{3}{4}$ bushels of wheat, $987\frac{7}{8}$ bushels of corn, and $352\frac{1}{2}$ bushels of oats. How many bushels of grain?

2. John lives $4\frac{3}{4}$ miles east of the bridge, and George lives $2\frac{7}{8}$ miles west of the bridge. How far apart do they live?

3. One end of the bridge stretches $20\frac{1}{6}$ feet over the land; the other end $49\frac{1}{3}$ feet over the land; and the middle, $110\frac{1}{4}$ feet over the water. How long is the bridge?

4. A man walked $2\frac{1}{8}$ miles, rode horseback $6\frac{1}{4}$ miles, and sailed $12\frac{1}{2}$ miles in a boat; how far did he go in all?

5. A girl had 4 pounds of candy, and gave to three other girls $1\frac{1}{2}$ pounds, $\frac{3}{4}$ pound, and $\frac{3}{8}$ pound; how much was left?

531. Written Exercises.

Find results:

1. $3\frac{1}{4}+7\frac{1}{8}-2\frac{5}{8}$
2. $\frac{1}{4}+\frac{2}{3}+\frac{1}{6}$
3. $\frac{7}{8}+\frac{1}{2}-\frac{3}{4}$
4. $2\frac{1}{2}+2\frac{1}{3}-3\frac{1}{4}$
5. $1\frac{3}{4}+1\frac{3}{8}-2\frac{1}{2}$
6. $19\frac{1}{8}-(5\frac{1}{2}+2\frac{1}{4})$
7. $20\frac{1}{4}-(7\frac{1}{8}+3\frac{1}{2})$
8. $61\frac{2}{3}-(1\frac{1}{6}+\frac{1}{2})$
9. $37\frac{1}{2}-(10\frac{1}{4}+\frac{1}{8})$
10. $15-(3\frac{1}{4}+3\frac{1}{3})$

REVIEW OF MULTIPLICATION

532. Written Problems.

1. A hotel uses $\frac{7}{8}$ of a bushel of meal per day; how much does it use in 30 days?

2. Lucy walks $\frac{5}{6}$ of a mile to school; how many miles does she walk in 5 days, going and coming once a day?

3. If a man walks $3\frac{3}{8}$ miles an hour, how many miles does he walk in 8 hours?

4. Find the value of 10 bales of cotton averaging 480 pounds, at $10\frac{3}{4}$ cents a pound.

5. Make a receipted bill for the sale of 150 pounds of bacon at $\$.09\frac{1}{2}$; 2 barrels of flour at $\$5\frac{1}{2}$; 96 pounds of sugar at $\$.05\frac{3}{4}$; 10 gallons of syrup at $\$.55$, and a sack of salt for $\$.90$.

6. A farmer raised $34\frac{3}{4}$ bushels of corn to the acre on a field of $21\frac{7}{8}$ acres; find the entire yield.

7. How many square feet are in a floor $15\frac{1}{2}$ feet long and $14\frac{3}{4}$ feet wide?

533. Written Exercises.

Multiply:

1. $16\frac{6}{7}$ by 6
2. $17\frac{3}{8}$ by 9
3. $21\frac{4}{9}$ by 8
4. $34\frac{5}{12}$ by 11
5. $43\frac{3}{16}$ by 13
6. 54 by $9\frac{2}{9}$
7. 25 by $8\frac{3}{4}$
8. 76 by $12\frac{3}{8}$
9. 84 by $7\frac{5}{12}$
10. 96 by $20\frac{5}{6}$
11. $\frac{3}{8}\times\frac{5}{6}$
12. $\frac{2}{3}\times\frac{4}{5}$
13. $\frac{3}{4}\times\frac{5}{9}$
14. $\frac{2}{9}\times\frac{2}{7}$
15. $\frac{7}{16}\times\frac{3}{4}\times\frac{2}{3}$

REVIEW OF DIVISION

534. Written Problems.

1. A farmer put 9 bushels of seed-corn into bags, each holding $\frac{3}{8}$ of a bushel; how many bags?

2. A bushel of corn weighs $\frac{14}{15}$ of the weight of a bushel of wheat; how many bushels of corn weigh as much as 140 bushels of wheat?

3. At $\frac{3}{10}$ of a dollar per yard, how many yards of flannel can be bought for $\frac{3}{4}$ of a dollar?

4. How many times can $\frac{3}{8}$ of a pound of sugar be taken from 18 pounds of sugar?

5. Four boys share equally $2\frac{1}{2}$ bushels of walnuts; what part of a bushel does each boy get?

6. If $\frac{7}{8}$ of a bushel of wheat will sow 1 acre, what part of the acre will $\frac{3}{16}$ of a bushel sow?

7. Eight pigs weigh $137\frac{3}{4}$ pounds; what is the average weight?

535. Oral Exercises.

Give quotients:

$\frac{1}{2} \div 1$	$\frac{1}{3} \div 1$	$\frac{2}{3} \div 2$	$\frac{3}{4} \div 3$
$\frac{1}{2} \div \frac{1}{2}$	$\frac{1}{3} \div \frac{1}{3}$	$\frac{2}{3} \div \frac{1}{2}$	$\frac{3}{4} \div 2$
$\frac{1}{2} \div \frac{1}{4}$	$\frac{1}{3} \div \frac{2}{3}$	$\frac{2}{3} \div \frac{1}{4}$	$\frac{3}{4} \div \frac{1}{2}$
$\frac{1}{2} \div \frac{1}{8}$	$\frac{1}{3} \div 2$	$\frac{2}{3} \div \frac{1}{3}$	$\frac{3}{4} \div \frac{1}{3}$
$\frac{1}{2} \div \frac{3}{4}$	$\frac{1}{3} \div \frac{1}{2}$	$\frac{2}{3} \div 3$	$\frac{3}{4} \div 6$

536. Written Problems.

1. If $\frac{3}{4}$ of your money is 75 cents, how much have you?

2. Put 7 pounds of candy into boxes, each holding $\frac{1}{2}$ pound; how many boxes?

3. If 24 children are $\frac{3}{8}$ of the pupils in school, how many pupils are in school?

4. Cut 90 feet of cord into as many pieces as you can, each piece $\frac{3}{4}$ of a foot; how many pieces?

5. Put $4\frac{1}{2}$ quarts of cider into 18 cups of equal size; what part of a quart is in each cup?

6. At $\frac{2}{5}$ of a dollar per gallon, how much cider can be bought for $2\frac{1}{2}$ dollars?

7. Weigh $2\frac{1}{2}$ pounds of sand, and see how many times you can take from it $\frac{1}{4}$ of a pound.

8. The garden is $\frac{4}{5}$ of an acre; $\frac{1}{4}$ of the garden is planted in melons; what part of an acre is planted in melons?

537. Written Exercises.

Find quotients:

1. $25 \div \frac{3}{8}$
2. $30 \div \frac{4}{5}$
3. $75 \div \frac{6}{7}$
4. $42 \div \frac{4}{5}$
5. $25 \div \frac{3}{10}$
6. $15 \div \frac{9}{10}$
7. $15 \div \frac{4}{5}$
8. $21 \div \frac{3}{8}$
9. $36 \div \frac{4}{9}$
10. $72 \div \frac{8}{9}$
11. $\frac{4}{5} \div \frac{3}{8}$
12. $\frac{6}{7} \div \frac{2}{3}$
13. $\frac{5}{8} \div \frac{4}{5}$
14. $\frac{3}{4} \div \frac{2}{9}$
15. $\frac{2}{3} \div \frac{7}{8}$
16. $\frac{7}{8} \div \frac{6}{7}$
17. $\frac{5}{6} \div \frac{4}{5}$
18. $1\frac{3}{4} \div 1\frac{2}{3}$
19. $2\frac{1}{8} \div 3\frac{1}{4}$
20. $3\frac{1}{3} \div 6\frac{2}{3}$

538. Oral Drills.

Give cost of each item:

40 at 25¢	48 at \$.33⅓	100 at 2½¢
60 at 75¢	60 at \$.66⅔	24 at 37½¢
16 at 12½¢	30 at \$.16⅔	8 at 62½¢
24 at 6¼¢	90 at \$.03⅓	30 at 87½¢

539. Give cost of each article:

4 for \$5	9 for \$12	16 for \$12
8 for \$1	9 for \$ 3	8 for \$ 3
32 for \$2	8 for \$ 5	50 for \$ 2.50

540. Give quotients:

$10 \div .25$	$50 \div 2\frac{1}{2}$	$100 \div .1$
$45 \div .75$	$60 \div \frac{1}{3}$	$100 \div .25$
$16 \div \frac{1}{8}$	$30 \div \frac{2}{3}$	$100 \div 3\frac{1}{3}$
$12 \div \frac{4}{12}$	$40 \div \frac{3}{4}$	$100 \div 16\frac{2}{3}$

541. Ratios. What part of the second is the first?

3 : 7	$2\frac{1}{2} : 7\frac{1}{2}$	$3\frac{1}{3} : 33\frac{1}{3}$
$\frac{3}{8} : \frac{7}{8}$	$6\frac{1}{4} : 18\frac{3}{4}$	$3\frac{1}{3} : 66\frac{2}{3}$
$\frac{5}{7} : \frac{6}{7}$	$37\frac{1}{2} : 75$	$33\frac{1}{3} : 100$
$\frac{3}{8} : \frac{3}{4}$	$12\frac{1}{2} : 62\frac{1}{2}$	$66\frac{2}{3} : 100$

542. Ratios. What part of the second is the first?

2 ft. : 1 yd.	9 in. : 1 ft.	8 in. : 2 ft.
6 hr. : 1 day	18 hr. : 1 day	1½ ft. : 2 yd.
12 oz. : 1 lb.	30 min. : 1 hr.	3 qt. : 1 pk.
3 pk. : 1 bu.	45 min. : 1 hr.	2 qt. : 2 pk.

DENOMINATE NUMBERS

543. Oral Questions.

1. How many ounces in 4 lb.? 5 lb.? 6 lb.?
2. How many ounces in $\frac{3}{4}$ lb.? 3 lb.? 10 lb.?

How many ounces in

$3\frac{1}{8}$ lb.?	$6\frac{1}{4}$ lb.?	$3\times12\frac{1}{2}$ lb.?
$6\frac{1}{4}$ lb.?	25 lb.?	$4\times12\frac{1}{2}$ lb.?
$12\frac{1}{2}$ lb.?	100 lb.?	$5\times12\frac{1}{2}$ lb.?
$37\frac{1}{2}$ lb.?	400 lb.?	$7\times12\frac{1}{2}$ lb.?

544. Table of Weight.

16 ounces = 1 pound.
2 000 pounds = 1 ton.

545. Written Exercises. — Addition and Subtraction.

1. Add 5 lb. 8 oz. to 6 lb. 10 oz.

The sum of 10 oz. and 8 oz. = 18 oz. 18 oz. = 1 lb. 2 oz. Write the 2 oz. under the ounces, and add the 1 lb. with the pounds.

5 lb.	8 oz.
6	10
12	2

2. Subtract 10 lb. 9 oz. from 12 lb. 3 oz.

12 lb. 3 oz. = 11 lb. 19 oz.
10 9

Add:

3. 4 lb. 4 oz. and 7 lb. 9 oz.
4. 4 lb. 4 oz. and 7 lb. 3 oz.
5. 6 bu. 3 qt. and 8 bu. 1 qt.

Subtract:

6. 5 gal. 2 qt. from 6 gal. 1 qt.
7. 8 wk. 5 da. from 9 wk. 4 da.
8. 6 wk. 6 da. from 8 wk. 2 da.

546. Oral Questions.

1. How many inches in 4 feet? 5 feet? 6 feet?
2. How many yards in 2 rods? 4 rods? 8 rods?
3. How many rods in 2 miles? 3 miles?

Give the inches in:	feet in:	yards in:
$3\frac{1}{3}$ feet	$3\frac{1}{3}$ yards	2 rods
$6\frac{2}{3}$ feet	$33\frac{1}{3}$ yards	10 rods
$8\frac{1}{3}$ feet	$66\frac{2}{3}$ yards	50 rods
$16\frac{2}{3}$ feet	$6\frac{2}{3}$ yards	100 rods

547. Linear Measure.

12 in. = 1 ft.
3 ft. = 1 yd.
$5\frac{1}{2}$ yd. = 1 rd.
320 rd. = 1 mi.

548. Written Exercises. — Multiplication.

1. How many inches are in 4 feet 2 inches?
2. Multiply 3 yards 2 feet 3 inches by 4:

3 yd.	2 ft.	3 in.	
		4	
15 yd.	0	0	

4×3 in. = 12 in. = 1 ft. 0 in.
4×2 ft. = 8 ft.
Add the 1 ft.: 8 ft. + 1 ft. = 9 ft. = 3 yd. 0 ft.
4×3 yd. = 12 yds.
Add the 3 yd. 12 yd. + 3 yd. = 15 yd.

3. 4×4 gal. 2 qt. 1 pt.
4. 5×5 gal. 1 qt. 1 pt.
5. 6×7 gal. 1 qt.
6. 8×4 ft. 2 in.
7. 9×6 ft. 3 in.
8. 10×7 ft. 5 in.

9. 7×9 bu. 2 pk. 1 qt.
10. 8×8 bu. 3 pk.
11. 11×5 bu. 3 pk.
12. 8×1 ft. 6 in.
13. 7×3 yd. 2 ft.
14. 11×1 rod 1 yd.

549. Oral Questions. — Division.

1. What is $\frac{1}{3}$ of 12 inches? $\frac{1}{2}$ of 3 feet?

2. What is $\frac{1}{5}$ of 15 ounces? $\frac{1}{5}$ of 15 pounds, 15 ounces?

Give quotients:

5 bu. $\div 2$	3 ft. 9 in. $\div 3$	4 pk. 4 qt. $\div 4$
12 in. $\div 3$	1 yd. 9 in. $\div 3$	1 bu. 4 qt. $\div 4$
1 yd. $\div 3$	3 pk. 3 qt. $\div 3$	2 bu. 4 qt. $\div 4$

550. Written Exercises. — Division and Review.

1. Divide 11 pounds 4 ounces by 5.

$$5\overline{)11 \text{ lb. } 4 \text{ oz.}}\quad 2 \text{ lb. } 4 \text{ oz.}$$

11 lb. $\div 5 = 2$ lb. + 1 lb. undivided.
The 1 undivided lb. = 16 oz.
16 oz. + 4 oz. = 20 oz.; 20 oz. $\div 5 = 4$ oz.

Divide:

2. 71 lb. 4 oz. $\div 5$
3. 21 lb. 4 oz. $\div 5$
4. 22 lb. 5 oz. $\div 3$
5. 3 wk. 3 da. $\div 2$
6. 12 hr. 5 min. $\div 5$
7. 6 da. 6 hr. $\div 5$
8. 7 bu. 2 pk. $\div 6$
9. 7 pk. 4 qt. $\div 4$

10. Divide 15 bushels 3 pecks by 2 bushels 1 peck.

15 bu. 3 pk. = 63 pk.
2 bu. 1 pk. = 9 pk.
63 pk. $\div$ 9 pk. = 7

11. Divide 6 yards 2 feet 8 inches by 2.

12. Divide 3 yards 2 feet 9 inches by 3.

13. Add 3 bushels 2 pecks, 1 bushel 3 pecks, and 2 bushels 1 peck.

14. Subtract 18 bushels 3 quarts from 21 bushels 2 quarts.

15. A garden is 99 yards 1 foot long, and 47 yards 2 feet wide; find the difference between the length and the breadth.

16. A farmer sold 13 bushels 2 pecks potatoes to one man, and 9 bushels 3 pecks to another; what quantity did he sell to the two men?

17. How many pints are in 4 gallons 3 quarts 1 pint?

18. A housekeeper in three weeks bought 4 gallons 3 quarts 1 pint of milk at 5 cents a pint; how much did it all cost?

19. A family uses in 7 days 8 gallons 3 quarts of milk; how much per day?

20. Subtract the sum of 2 feet 9 inches and 1 foot 8 inches, from the sum of 2 feet 10 inches and 2 feet 3 inches.

21. Add the difference between 4 bushels 3 pecks and 5 bushels 2 pecks to 1 bushel 1 peck.

22. Multiply the sum of 4 yards 2 feet and 3 yards 2 feet by 9.

23. Divide 100 yards 2 feet by 3.

551. Square Measures.

144 sq. in. = 1 sq. ft.
9 sq. ft. = 1 sq. yd.
30¼ sq. yd. = 1 sq. rd.
160 sq. rd. = 1 acre.
640 acres = 1 sq. mi.

552. Oral Questions.

1. How many square inches in ½ square foot?

2. Measure and see how many square inches there are in a square that is 6 inches to the side.

3. How many square inches are in an oblong 2 inches wide and 6 inches long?

4. The garden is 5 rods wide and 6 rods long; how many square rods in the garden?

5. How many square miles are in a rectangular ranch 4 miles long and 3 miles wide? What is the distance around the ranch?

553. The distance around a rectangle is called its perimeter. The amount of surface is called its area.

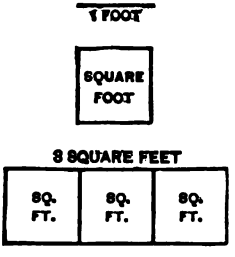
6. What is the perimeter of a rectangle 4 inches wide and 1 foot long?

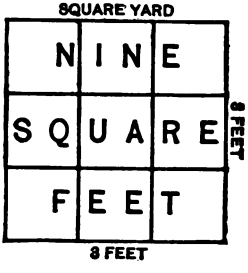
7. What is the area of a rectangle 2 feet broad and 3 yards long?

554. To find the area of a rectangle:
Multiply the length by the breadth.

555. Written Exercises.

1. Measure, and prove that a rectangular surface 5 in. by 6 in. has an area of ——— square inches.





Find the number of square feet in a rectangular surface 4 feet long and 3 feet wide.

A surface 1 ft. long, 1 ft. wide = 1 square foot.
" " *four* ft. long, 1 ft. wide = 4 × 1 sq. ft. = 4 sq. ft.
" " 4 ft. long, *three* ft. wide = 3 × 4 sq. ft. = 12 sq. ft.

2. Find the area of a lot 50 feet by 100 feet.

3. How many acres in a field containing 6 000 square rods?

4. How many acres in a square field, one side of which is 40 rods long?

5. How many square rods are in a field whose area is 12 acres 150 square rods?

556. Oral Exercises.

1. If you had planks 1 foot wide and 12 feet long, how many could you lay side by side on a floor 12 feet square?

2. If you have carpet 3 feet wide and 15 feet long, how many widths or strips will you lay on a floor 15 feet wide and 15 feet long?

3. How many strips 1 yard wide would it take to carpet a floor 12 feet wide?

4. A floor is 15 feet wide. How many strips of carpet will cover it if each strip is 1 yard wide? $\frac{1}{2}$ yard wide?

5. A floor is 12 feet wide. How many strips of carpet will cover it if each strip is 2 feet wide? 1 foot wide? $1\frac{1}{2}$ feet wide? 1 yard wide?

6. What is the area of your slate?

7. What is the area of a square table 4 feet by 4 feet?

8. What is the area of a square rug whose perimeter is 24 feet?

9. What is the area of a pane of glass 10 inches by 12 inches? a pane 16 by 24 inches?

10. What is the perimeter of a square that contains 4 square feet?

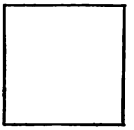


Fig. 1.

Fig. 2.

A yard square is square, but a square yard need not be square; if an area is as great as a yard square, it is called a square yard, no matter what its shape may be. The figure 1 represents a square yard and a yard square. The figure 2 represents a square yard, but not a yard square.

557. Written Exercises.

1. Find the area of a rectangular field 32 rods by 64 rods.

2. A garden is 9 rods long and 5 rods wide. How many square rods in the garden? What is its perimeter?

3. A lot is 40 feet by 100 feet. What is paid for it at 2 dollars per square foot?

4. Find the number of square rods in $\frac{5}{8}$ of an acre.

Find the number of:

5. Square rods in $2\frac{1}{2}$ acres.
6. Square feet in $10\frac{1}{2}$ sq. yd.
7. Acres in $2\frac{1}{2}$ sq. miles.
8. Square inches in $1\frac{1}{2}$ sq. ft.
9. Square ft. in 2 yd. sq.
10. Square inches in 2 ft. sq.

11. Since 9 square feet make 1 square yard, and $30\frac{1}{4}$ square yards make one square rod, there are —— square feet in 1 square rod.

12. Find the number of square yards in a floor 15 feet wide, 18 feet long.

13. Find the cost, at \$1.50 per square yard, of laying tiles in a passage 30 feet long, 9 feet wide.

14. Find the sum of 9 yards square and 9 square yards.

15. What part of a square foot is covered by a brick 8 inches long and 4 inches wide?

16. What part of a square yard is covered by a box 1 foot wide and $1\frac{1}{2}$ feet long?

17. There is a sheet of paper 18 inches long, with an area of 2 square feet. How wide is the sheet?

PERCENTAGE

558. Oral Questions.

1. A man rode on a train 25 miles for 75 cents; what rate did he pay per mile?

2. A man rode on a train 300 miles for $9; what rate did he pay per hundred miles?

3. A cotton-picker received $5 for picking 1 000 pounds of cotton; at what rate per hundred pounds was he paid?

4. A nickel is how many hundredths of 100 cents?

5. A dime is how many hundredths of a dollar?

6. If you pay a dime a hundred for chestnuts, how much do you pay for a thousand?

7. When you pay $5 a thousand for shingles, how much do you pay per hundred?

559. Per hundred is called also *Per Cent.* 5 cents on every hundred cents is 5 per cent, written 5%. 6 apples out of every hundred apples is $\frac{6}{100}$ of the apples, and is written 6% of the apples.

560. The number on which the percentage is reckoned is called the Base.

561. The Rate per cent is the rate per hundred of the Base.

8. How many hundredths of 1 bushel is 1 peck?

9. How many hundredths of 1 gallon is 1 quart?

10. A half-gallon measure holds $\frac{50}{100}$ of what measure?

11. A peck measure holds .25 of what measure?

$\frac{25}{100}$, .25, 25 % all mean the same thing.

12. How many hundredths of 50 is 5? What per cent of 60 is 6?

13. How many hundredths of 100 is 5? What per cent of 80 is 8?

14. What per cent of 100 is 8? 9? 10? 12? 15?

15. Of what number is 6 six per cent?

16. Of what number is 5 ten per cent?

17. Of what number is 5 twenty per cent?

562. Written Problems.

Find 9 % of $200.

1%, or $\frac{1}{100}$, of $200 = $2

9% " " = 9 × $2 = $18

$2.00
9
$18.

563. To find Percentage:

First point off 2 places for 1 per cent; then multiply by the given per cent.

1. Find $6\frac{1}{2}$ per cent of $1 000.

2. A farmer had 200 acres of land and planted 25 % of it in corn; how many acres in corn?

3. A girl had 75 cents and spent 20 % of her money; how many cents did she spend? How much did she have left?

4. A man earns $60 a month and pays 30 % of his wages for board; how much does he pay for board?

5. A girl starts on a journey of 150 miles, and goes 60 per cent of the distance the first day; how far has she still to go?

6. You sell 50 % of a bushel of chestnuts at 15 cents a quart; how much do you get?

7. Your garden contains 200 square yards, and you have 16 % of it in roses; how many square yards in roses?

8. A man earns $75 per month, and his son's earnings equal 40 % of the father's; how much do both earn per month?

9. Your bicycle cost $36; you let John have it for a year, and he pays you 33⅓ % of the cost; how much does he pay you?

10. A farmer had 90 sheep; 10 % of them died, and he sold the rest at $6.50 a head. What did he get?

11. A boy raised 40 chickens, and sold 75 % of them at 45 cents apiece. How much did he get?

12. A girl travels 200 miles by water, and her journey by land equals 25 % of her journey by boat; how far does she go?

564. Oral Exercises.

Give results:

30 % of 600	8 % of 200	9 % of 50
25 % of 600	12 % of 300	7 % of 40
15 % of 600	6 % of 600	3 % of 20
5 % of 600	3 % of 1200	4 % of 25

565. Give results:

$\frac{3}{8}$ of 100	$\frac{1}{6}$ of 100	$\frac{5}{6}$ of 100
$\frac{5}{8}$ of 100	$\frac{1}{3}$ of 100	$\frac{1}{8}$ of 100
$\frac{7}{8}$ of 100	$\frac{1}{16}$ of 100	$\frac{1}{7}$ of 100
$\frac{2}{3}$ of 100	$\frac{1}{15}$ of 100	$\frac{1}{9}$ of 100

566. What per cent does each of the following fractions equal?

$\frac{1}{2}$	$\frac{2}{5}$	$\frac{3}{8}$	$\frac{5}{6}$	$\frac{1}{4}$	$\frac{2}{3}$	$\frac{1}{6}$	$\frac{7}{8}$
$\frac{1}{3}$	$\frac{3}{4}$	$\frac{5}{8}$	$\frac{1}{16}$	$\frac{1}{5}$	$\frac{1}{8}$	$\frac{1}{16}$	$\frac{5}{16}$

567. Written Exercises.

Find the percentage:

1. $2\frac{1}{2}$ % of 500	2. $3\frac{1}{2}$ % of 600	3. $3\frac{1}{3}$ % of 990
4. $12\frac{1}{2}$ % of 864	5. $16\frac{2}{3}$ % of 966	6. $18\frac{3}{4}$ % of 300
7. $22\frac{1}{2}$ % of 180	8. $27\frac{1}{2}$ % of 550	9. $33\frac{1}{3}$ % of 999
10. $37\frac{1}{2}$ % of 750	11. $62\frac{1}{2}$ % of 800	
12. $87\frac{1}{2}$ % of 1 600	13. $6\frac{2}{3}$ % of 495	
14. $8\frac{1}{3}$ % of 1 932	15. $66\frac{2}{3}$ % of 750	

568. Oral Exercises. — Finding the Rate.

1. What per cent of \$1 is 50 cents?

2. What per cent of 80 is 30?

$\frac{30}{80} = \frac{3}{8} =$ 8)3.00

$.37\frac{1}{2}$, or $37\frac{1}{2}$ %

What per cent

Of 44 is 11?	Of 66 is 33?
Of 75 is 25?	Of 50 is 40?
Of 100 is $13\frac{8}{9}$?	Of 50 is $12\frac{1}{2}$?
Of 200 is 40?	Of 3 is 1?
Of 10 is $3\frac{1}{3}$?	Of 25 is $6\frac{1}{4}$?
Of 8 is 5?	Of 8 is 7?
Of 4 is 3?	Of 1 is 1?

569. Written Exercises.

1. In a school of 80 pupils there are 44 boys; what per cent of the school are boys?

80 pupils = 100 % of school.
1 pupil = $\frac{100}{80}$ % of school.
44 pupils = $44 \times \frac{100}{80}$ % of school = 55 % of school.

Process.

80)44.00

.55

2. What per cent of 16 gallons is 4 gallons?

3. A man bought a horse for \$150 and sold him for \$175; what per cent did he gain?

4. A farm of 160 acres has 32 acres in woodland; what per cent of the farm is in woodland?

5. In an orchard containing 1 776 trees, 444 trees are apple-trees; what per cent are apple-trees?

What per cent.:

6. Of 500 is 125?
7. Of 192 is $9\frac{3}{5}$
8. Of 225 is 15?
9. Of 950 is 19?
10. Of 725 is $217\frac{1}{2}$?
11. Of \$75 is \$50?
12. Of 62 is $23\frac{1}{4}$?
13. Of 625 is $12\frac{1}{2}$?

570. To find the Rate:
Divide the Percentage by the Base.

571. Oral Problems. — Finding the Base.

1. In one pocket you have 25 cents, which is $\frac{1}{2}$ of your money; how much money have you?

2. You spent 50 % of your money for a 25-cent magazine; how much money did you have at first?

3. Two nickels are 10 per cent of your money; how much have you?

4. Twenty per cent of a man's salary is \$100; what is his salary?

5. Ten pounds is 20 % of how many pounds?

6. A boy rides five miles, and has 95 per cent of his journey yet before him; how long is the journey?

7. If $16\frac{2}{3}$ % of a man's crop is worth \$1 000, what is the whole crop worth?

8. In 15 minutes the hour-hand makes 25 % of a circle; how long does it take for the whole circle?

9. A man made \$16 in a trade, gaining 10 %; how much had he paid?

10. When John had ridden 45 miles, he had still to go 75 % of his journey; how long was his journey?

11. When a ship had sailed a thousand miles, she had made but $33\frac{1}{3}$ % of her voyage. How long was the voyage?

12. A man lost \$25, which was $12\frac{1}{2}$ % of his money; how much had he at first?

13. You lose a dime out of your pocket and still have 75 % of what you started with; how much had you?

14. Mary picked 3 roses from a bush, and Lucy picked 5 roses from the bush, and 20 % of the roses were left on the bush; how many were there at first?

572. Written Problems.

1. A field of 30 acres is 15 % of a man's farm; how many acres in the farm?

15 % of farm = 30 acres.
1 % of farm = 2 acres.
100 % of farm = 200 acres.

Process.

.15)30.00
200

2. A man bought a railroad ticket for \$9, which was 45 % of the expense of his journey; what was the total expense?

3. Find the number of gallons of water in a cistern in which 19 % of the water is 570 gallons.

4. A farmer sold 480 bushels of corn, which was 24 % of his crop; how many bushels were in his entire crop?

5. For rent a man pays annually \$360, which is 18 % of his salary; what is his salary?

6. A farm was mortgaged for $3 680, which was 92 % of its cost; find its cost.

7. At the end of the 168th mile a train had made 35 % of the day's run; find the total run for the day.

Find the base

8. Of which 10 is 3 %.
9. Of which 21 is 7 %.
10. Of which 25 is 12½ %.
11. Of which 36 is 25 %.
12. Of which 42 is 12 %.
13. Of which 56 is 20 %.
14. Of which 15 is 4½ %.
15. Of which 30 is 10 %.
16. Of which 16 is 8 %.
17. Of which 54 is 37½ %.
18. Of which 10½ is 3 %.
19. Of which 126 is 45 %.

573. To find the Base:
Divide the Percentage by the Rate.

574. Oral Problems. — Review of Percentage.

1. In school there are 60 children; 55 % of them are boys; how many girls?

2. A hunter killed 3 geese out of a flock of 12; what per cent of the flock did he kill?

3. A dollar and a half is 33⅓ % of your money; how much have you?

4. How long is a fence, when 12½ per cent of it is half a mile long?

5. Sell 25 % of your chickens for $5; what should the rest of them be worth at the same price?

6. A man gave away 15 cents and kept 90 % of his money; how much had he at first? How much did he have left?

7. Fly your kite with a long string; $12\frac{1}{2}$ % of it is 50 yards; how long is the whole string?

8. Buy 5 oranges at 4 cents apiece with $66\frac{2}{3}$ % of your money; how much do you have left?

9. Of 36 pigs, 12 were sold; what per cent?

10. Sell 15 of your 50 chickens; what per cent do you keep?

11. Give away $37\frac{1}{2}$ % of 200 apples, and keep the rest; how many do you keep?

12. Take 50 per cent of $2.50 and divide it among five girls; how much does each girl get?

575. Written Problems.

1. A man has $15 000, and owes 30 % of the amount; how much does he owe?

2. B owed C $520, and paid 40 % of the debt; find the balance due.

3. A man has his house insured for $2 400 at an annual cost of $1\frac{1}{2}$ % of the amount insured; how much does he pay yearly?

4. A miller received for toll $14\frac{2}{7}$ % of 5 600 pounds of corn; how many pounds of corn did he receive for toll?

5. If $66\frac{2}{3}$ % of the weight of seed-cotton is the weight of the cotton-seed, how many pounds of cotton-seed are in 2 000 pounds of seed-cotton?

6. Of 1 000 bundles of fodder 150 bundles spoiled; what per cent of the fodder spoiled?

7. Of 2 240 pupils enrolled, 1 904 are present; what per cent of the enrollment are present?

8. In a field containing 200 acres, 36 % of it is planted in corn; how many acres in corn?

9. A ranchman sold, at $17 per head, 25 % of 12 480 head of cattle; how much did he get?

10. Of a cargo containing 40 000 bushels of wheat, 18 % was spoiled; how many bushels were spoiled?

11. What must a man pay as a tax on $3 500, when the rate of taxation is $1\frac{1}{4}$ %?

12. A commission merchant sold 5 250 bushels of corn at $.60 per bushel, and charged 4 % commission; what sum did he charge? How much did the owner receive?

13. An agent sold a farm for $11 200, and charged for commission $4\frac{1}{2}$ %; how much did the owner receive?

14. A man paid $125.25 tax, at the rate of $1\frac{1}{2}$ %; on what amount was he taxed?

15. A farmer bought a piece of woodland containing 26 acres at $72 per acre, and paid $33\frac{1}{3}$ % cash; how much had he yet to pay?

16. A merchant sold goods to the amount of $37 500, for 24 % of which he received cash; find the amount of his cash sales.

17. A candidate received $55\frac{3}{4}$ % of 54 000 votes; how many votes did he get?

18. A house costing \$1 620 was repaired at an expense of \$540; the first cost was what per cent of the total cost?

19. A coal dealer sold all but 5 % of 1 000 000 pounds of coal; how many tons did he sell?

20. A house valued at \$1 350 was insured for $\frac{2}{3}$ of its value at the rate of $1\frac{1}{4}$ %; what premium, or amount, was paid for the insurance?

21. A man had his life insured for \$3 000, on which amount he paid $2\frac{1}{10}$ per cent annually; what was his yearly payment?

22. An agent sold a house for \$1 500, and charged \$50 for selling it; what per cent did he charge?

23. An auctioneer received \$16 for selling 128 barrels of damaged flour at \$1.25 per barrel; what per cent did he charge?

24. A broker sold strawberries, charging 5 % commission, and received for his own share \$32; find the total amount he received for the berries.

25. A horse was bought for \$125, and sold for \$100; what per cent was lost?

26. A horse was bought for \$100, and sold for \$125; what per cent was gained?

27. What per cent of \$5 is \$4.75?

INTEREST

576. Oral Questions.

1. What per cent of $100 is $6?

2. A man borrows $100, and at the end of the year pays back the $100, and pays also $6 for interest. What per cent does he pay for interest?

3. A man borrows $100, and at the end of 2 years pays back $100, and $12 for interest. What per cent a year does he pay for interest?

577. Interest is a charge for the use of money.

578. The Principal is the money used, or borrowed.

579. The Amount is the sum of the Principal and the Interest.

580. The Rate of Interest is the rate per dollar, or so many cents on the hundred cents, for 1 year.

581. Written Exercises.

1. Find the interest on $600 for 3 years at 8 %.

$6.00 = Interest at 1 % for 1 year.

8

$48 = Interest at 8 % for 1 year.

3

$144 = Interest at 8 % for 3 years.

Find the interest on:

2. $750, 4 years, 7 %.
3. $850, 4 years, 7 %.
4. $950, 4 years, 7½ %.
5. $800, 3½ years, 7 %.
6. $700, 3 years 6 months, 8 %.

582. Oral Questions.

1. What part of a year is 6 mo.? 9 mo.? 3 mo.?
2. What part of a month is 15 days? 20 days? 10 days?

In Interest computations 30 days = 1 month
12 months = 1 year

583. Written Exercises.

Find the interest on

1. $150 for 3 months at 6 %.

$1.50 = Interest at 1% for 1 year.
$9. = Interest at 6% for 1 year.
$9 ÷ 4 = $2.25 = Interest at 6% for ¼ year.

Find the interest on

2. $150 for 1 year 3 months at 6 %.
3. $690 for 3 years 3 months at 6 %.
4. $500 for 3 years 6 months at 7½ %.
5. $124 for 1 year 4 months at 6 %.

584. Interest for Days.

1. Find the interest on $100 at 6 % for 15 days.

$1.00 = Interest at 1% for 1 yr.
$6.00 = Interest at 6% for 1 yr.
(1 mo. = 1/12) $ .50 = Interest at 6% for 1 mo.
$ .25 = Interest at 6% for ½ mo.

Find the interest on

2. $100 at 6 % for 2 months 15 days.
3. $456 at 6 % for 2 years 6 months 20 days.
4. $150 for 1 year 11 months at 6 %.
5. $240 for 1 year 10 months at 7 %.

585. Time between Dates.

1. Find the difference in time between Aug. 19, 1903, and Sept. 1, 1905.

Process.			EXPLANATION.
1905 yr.	9 mo.	1 da.	Sept. 1 is the 1st day of the 9th month.
1903	8	19	Aug. 19 is the 19th day of the 8th month.
2	0	12	

As 19 cannot be subtracted from 1, one of the months in the minuend is changed to days, so that 8 mo. 19 da. will be subtracted from 8 mo. 31 days. See prob. 2, Art. 545.

2. Find the difference in time between June 18, 1900, and April 21, 1906.

3. Find the difference in time between Jan. 22, 1902, and Dec. 19, 1906.

4. Dec. 15, 1903, a man borrowed \$450, at 7 %, and paid principal and interest May 5, 1906. What amount did he pay?

Process.			EXPLANATION.		
1906	5	5	\$4.50	= Int. 1 yr.	at 1 %
1903	12	15	7		
2	4	20	\$31.50	= " "	" 7 %
			2		
			\$63.00	= " 2 yr.	" 7 %
4 mo. = $\frac{1}{3}$ yr.			\$31.50 ÷ 3 = 10.50	= " 4 mo.	" 7 %
20 days = $\frac{1}{6}$ of 4 mo.			= 1.75	= " 20 days	" 7 %
			\$75.25	= Total Interest	
			450.	= Principal	
			\$525.25	= Amount	

5. Find the amount of $600 from July 19, 1900, to May 4, 1902, at 7 %.

6. Find the amount of $750 from April 1, 1902, to May 16, 1903, at 8 %.

7. Find the interest at 5 % on a note for $500 dated May 2, 1904, and paid June 17, 1905.

8. Find the amount due on the following note, paid six months after its date:

BALTIMORE, MD., Sept. 14, 1906.

$1000\frac{00}{100}$

On demand I promise to pay Charles W. Franks, or order, one thousand dollars, with interest at 6 per cent.
Value received.

L. S. MILES.

9. For goods billed at $1 540, a merchant gave his note, payable in 90 days, with 6 % interest; find the amount of the note.

10. A note for $345, dated June 8, 1905, was paid Nov. 14, 1906, with interest at 8 %. What was the amount paid?

586. To find Interest:

Multiply 1 % of the Principal by the Rate per cent. Then multiply by the number of years.

To find the Amount:

Add the Principal to the Interest.

587. Oral Review Problems.

1. What is the area of a rectangle 5 feet long, 4 feet wide?

2. A man had \$50, and spent \$10.25; how much did he then have?

3. How many boxes, each to contain $\frac{1}{8}$ bushel, can you fill from a sack holding $\frac{3}{4}$ bushel of meal?

4. If $\frac{3}{4}$ of a man's age is 36 years, how old is he?

5. What part of a bushel is $\frac{1}{4}$ of a peck?

6. If you shell a peck of corn every 12 minutes, how long will it take you to shell a bushel and a quarter?

7. A man works for \$2.25 per day; what are his weekly wages?

8. You sell milk for \$6 at 3 cents a pint; how many gallons do you sell?

9. What two numbers make the product 85?

10. If a man earns \$2.25 per day and works 6 days in the week, in how many weeks does he earn \$150?

11. A man spent 20 % of his money and had \$10 left; how much had he at first?

12. You buy apples at 3 for a cent and sell them at 2 for a cent; what per cent do you gain?

13. How many pounds of sugar at $6\frac{1}{4}$ cents a pound will pay for 6 dozen eggs at $16\frac{2}{3}$ cents a dozen?

14. Let your chickens have a quart of corn per day; in how many days will they get a bushel and a half?

15. A hundred pounds of cotton at 10 cents a pound would be worth how many bushels of wheat at $62\frac{1}{2}$ cents a bushel?

16. If 5 bushels of wheat sell for $4, how much will 3 bushels sell for?

17. You sow $\frac{2}{3}$ of a bushel of seed-wheat per acre; how much on 12 acres?

18. You sow 18 bushels of oats, a bushel and a half to the acre; how many acres in your field?

19. A girl spent $2.50, and kept $\frac{2}{3}$ of her money; how much did she have at first?

20. Sell 3 dozen eggs at 20 cents, and 7 chickens at 30 cents; how much do you get?

21. What per cent of the school week is 1 day?

22. At three for a dime, how many oranges can you get for 50 cents?

23. You catch 13 fish weighing half a pound each, and 2 fish weighing together $1\frac{1}{2}$ pounds; how many pounds of fish?

24. You sell 30 % of your eggs for 30 cents; at the same rate, how much are they all worth?

25. You bring in $12\frac{1}{2}$ % of your coal, and leave 7 tons outside; how much do you have in all?

588. Written Problems. — Review.

1. A field of wheat yielded 50 bushels to every 3 acres; the total yield was 450 bushels; how many acres were in the wheat-field?

2. How many miles apart are two boats which passed each other 3 hours ago and have since made a constant speed, the one going down 12 miles per hour, and the up-bound boat going 9 miles per hour?

3. In $\frac{3}{4}$ of a mile there are 1 320 yards; how many yards are in $\frac{7}{8}$ of a mile?

4. The cargo of a certain steamship would load 254 freight cars with 23 000 pounds each; how many wagon-loads of 2 000 pounds each are in the cargo?

5. How many pounds of seed-cotton will make 6 bales, weighing 500 pounds each, if it require 1 350 pounds of seed-cotton for a bale weighing 450 pounds?

6. In $\frac{7}{8}$ of a mile there are 4 620 feet; how many feet are in $\frac{3}{4}$ of a mile?

7. A dealer bought $17\frac{1}{2}$ bushels of pecans at \$1.50 per bushel and retailed them at \$.05 per pint; how much did he gain?

8. An apple orchard has 28 rows of trees, 24 trees to the row; the yield averages 3 bushels to the tree; a bushel weighs 56 pounds; how many pounds does the whole crop weigh?

9. In a square mile there are 640 acres. In one state 52 counties of equal size contain 29 952 000 acres; how many acres in each county?

How many square miles in each county?

10. A mason built 396 feet of brick wall at \$10 per rod; how much did he receive?

11. Bought $2\frac{1}{2}$ tons hay at \$16.50 per ton, 2 tons fodder at \$.90 per hundred pounds, 1 ton cotton-seed, 32 lb. to the bushel, at \$.20 per bushel; find the cost.

12. A man sold a horse for \$125, and gained 25 %; how much did he pay for the horse?

13. Make a receipted bill for $4\frac{1}{2}$ pounds of butter at \$.30; 3 dozen eggs at \$.25; 4 pounds of cheese at \$.22; 6 pounds of honey at \$.12½; and 3 pecks of sweet potatoes at \$.25.

14. If in $\frac{3}{4}$ of this month there are 22.5 days, how many days are in $\frac{5}{6}$ of this month?

15. A man bought 600 bushels of corn at \$.50 per bushel and sold the whole for \$250; what per cent did he lose?

16. How far is it from D to G if a train makes the distance in $13\frac{1}{2}$ hours, running at the rate of $27\frac{1}{2}$ miles per hour?

17. A dealer bought 960 melons at \$8.25 a hundred; how much did all cost him?

18. A farmer raised $22\frac{1}{2}$ bushels of wheat per acre on 20 acres; he sold 25 % of the crop at \$.84 per bushel; how much did he get?

19. After spending $\frac{3}{8}$ of his money, a man has \$10.25; how much did he have at first?

20. A farmer has a rectangular field 80 rods by 50 rods; he plants 50 % of the field in corn, and gathers 36 bushels to the acre; how many bushels of corn does he gather?

21. Of a fence a mile long, 40 rods was swept away by high water; what per cent of the fence was swept away?

22. How many days will 34 bushels 7 quarts of meal last a family that uses 1 quart 3 times a day?

23. In what time can a man ride $44\frac{1}{5}$ miles at the rate of 6.8 miles per hour?

24. How many pounds of bacon, at $9\frac{1}{2}$ cents per pound, can be bought for \$3.04?

25. At 15 cents per square yard, find the cost of painting a board fence 100 feet long and 9 feet high.

26. How many barrels of flour worth \$3.70 per barrel should be given for $18\frac{1}{2}$ bushels of wheat worth 60 cents per bushel?

27. If 94 000 shingles cost \$352.50, what is the cost per thousand?

28. A farmer bought 2 pecks 1 quart of extra quality of seed-corn in one-pint packages at \$.15 per pint; find the cost.

29. A man left home at 6:30 P. M., and was absent .875 of a day; at what hour did he return?

30. A trader bought 882 acres of land for \$4 851; he sold $\frac{1}{3}$ of it at \$4 per acre, $\frac{1}{7}$ of it at \$2.25 per acre, and the remainder at \$7.50 per acre; find the gain.

31. A merchant bought 50 yards of cloth at \$4 per yard, and sold it for \$212.50; what per cent did he gain?

32. Make a receipted bill for 176 pounds of bacon at $\$.08\frac{3}{4}$; 60 pounds of sugar at $\$.06$; 15 pounds of coffee at $\$.25$; 36 gallons of molasses at $\$.42$; and 3 barrels of flour at $\$5.25$.

33. A grocer sold $\frac{1}{8}$ barrel of sugar to one customer, $\frac{1}{6}$ barrel to another, $\frac{1}{4}$ barrel to another, and $\frac{1}{3}$ barrel to another; what part of the barrel of sugar remained?

34. A huckster bought 5 bushels of onions at $\$1.25$ per bushel, and sold them at $\$.08$ per quart; how much did he gain?

35. Find the number of rods around a square field measuring $\frac{2}{5}$ mile to the side.

36. Find the number of rods around a square field measuring 880 yards to the side.

37. At 32 pounds to the bushel, how many sacks, each to contain 2 bushels, will be required to hold 256 tons of cotton-seed?

38. In a drought a farmer had to haul water; at each load for his mules he hauled 5 barrels, averaging 42 gallons to the barrel; at 10 pounds to the gallon, how many pounds of water did the mules pull to the load?

39. How many flag-stones, each 3 feet by 2 feet, should be bought to pave a walk 17 yards long and 4 feet wide?

40. How much grain will three bins hold, if they will hold, respectively, 17 bushels 3 pecks, 21 bushels 2 pecks, and 29 bushels 3 pecks?

41. A grocer sold 379 pecks of sweet potatoes at $.80 per bushel; how many bushels did he sell? How much did he receive for them?

42. If a farm of 250 acres is divided equally among 9 heirs, what is the share of each?

43. A merchant sells thread which costs $3\frac{1}{2}$ cents a spool at a profit of $33\frac{1}{3}$ %; find the gain on 500 dozen spools.

44. Find the value of 37 bales of cotton, averaging 448 pounds, at 10.22 cents per pound.

45. A man spends $\frac{9}{20}$ of his income and saves $1375; what is his income?

46. If 3 quarts of oats be given to each of 4 mules 3 times per day, in how many days will the mules get 90 bushels?

47. Find the amount of $86.75 at interest for 3 years 2 months 6 days at 4 %.

48. A man sold a wagon for $48, which was $\frac{16}{15}$ of the sum he paid for it; how much did he gain?

49. If $9\frac{1}{3}$ bushels of corn weigh $528\frac{1}{2}$ pounds, what is the average weight per bushel?

50. A merchant bought tea at the rate of 5 pounds for $4, and sold it at the rate of 4 pounds for $5; find the per cent. he gained.

51. Find the cost of putting up 157 miles 144 rods of telegraph wire at $55.75 a mile.

52. A man can mow 6 acres in 4 days; in how many days can he mow 100 acres at the same rate?

53. A man has $20\frac{3}{4}$ acres in one field, $40\frac{4}{7}$ acres in another, and $\frac{2}{3}$ as many acres in a third field as he has in the first two; find the number of acres in the three fields.

54. At the rate of 4 pounds for \$1.92, how much tea can be bought for $\$\frac{9}{10}$?

55. If $\frac{5}{8}$ yard of cloth will make a vest, how many such vests can be made from $31\frac{1}{4}$ yards of cloth?

56. A man sold his watch for \$75, which was $\frac{5}{8}$ of its cost; what did he lose?

57. A merchant bought a piano for \$570, and sold it for \$625; what per cent did he gain?

58. A farmer sold $38\frac{1}{2}$ bushels of wheat at $\$.62\frac{1}{2}$ per bushel, and received payment in cloth at $\$.06\frac{1}{4}$ per yard; how much cloth did he receive?

59. What will it cost to floor a room $17\frac{1}{2}$ feet long and 16 feet wide at \$1.10 per square yard?

60. At \$62.50 per acre, find the cost of a field containing 13 acres 40 square rods.

61. What part of $66\frac{2}{3}$ must be added to $66\frac{2}{3}$ to make 100?

62. Find the total weight of four boxes weighing, respectively, $14\frac{7}{16}$ pounds, $24\frac{1}{4}$ pounds, $39\frac{5}{8}$ pounds, and $17\frac{9}{16}$ pounds.

63. James shares a melon with three other boys, giving William $\frac{1}{4}$ of it, John $\frac{1}{3}$ of it, and George $\frac{1}{6}$ of it; what part of the melon is James's share?

64. A farmer gave $\frac{2}{5}$ of his money for a wagon, $\frac{8}{10}$ of his money for a cow, and then had $36; how much did he have at first?

65. A boy bought oranges at the rate of 5 for 10 cents, and sold them at the rate of 4 for 10 cents; find his profit on each orange.

66. Mr. Jones rented to Mr. Brown 75 acres, to be planted half in corn and half in cotton; the corn crop was $32\frac{1}{2}$ bushels per acre, and the crop of cotton 576 pounds of seed-cotton per acre. What was the entire corn crop?

What was the entire crop of seed-cotton?

67. The rent paid by Mr. Brown was $\frac{1}{3}$ of the corn and $\frac{1}{4}$ of the cotton; how many pounds of seed-cotton did he pay? How many bushels of corn did he pay?

68. Of the seed-cotton $\frac{1}{3}$ was lint; how many pounds of lint-cotton did Mr. Jones receive for rent?

How many pounds in Mr. Brown's share?

69. The lint-cotton was packed into 16 bales; what was the average weight of the lint-cotton to the bale?

70. What was the weight of the average bale, 24 pounds of bagging and ties being used on each?

ANSWERS

Page 107.

1. 375 A.
2. 1597
3. $117
4. 117
5. 142 books
6. 767 lb.
7. 158 trees
8. 1026
9. 228,919 bu.

Page 108.

1. 395
2. 304
3. 890
4. 267
5. 530
6. 1224
7. 904
8. 620
9. 593
10. 961

1. 3479
2. 3583
3. 3063
4. 3229

Page 110.

2. 16 A.
3. 521 mi.
4. 521 cattle
5. 266 bu.
6. 425
7. $1.50
8. 1,467,461
9. 3331
10. 31,081
11. 112,434 lb.

Page 112.

1. 144
2. 303
3. 303
4. 671
5. 95
6. 782
7. 201
8. 5703
9. 3325
10. 1242
11. 318
12. 2214
13. 265
14. 527
15. 3909
16. 2193
17. 804
18. 2513
19. 1605
20. 1466
21. 1060
22. 606
23. 203
24. 193
25. 183
26. 100
27. 10
28. 1010
29. 1001
30. 1112

Page 113.

1. 167 mi.
2. 164 lb.
3. 34 chickens
4. 491 lb.
5. 44 rows
6. 91
7. $19
8. (1) 699
   (2) 93
   (3) 104
   (4) 737
   (5) 241
   (6) 83
   (7) 951
9. 767;
   715;
   474;
   545;
   750;
   727;
   467;
   115;
   517.
10. $1694

Page 114.

1. 728
2. 579
3. 1623
4. 1043
5. 864
6. 1408
7. 895
8. 101
9. 8137
10. 8019
11. 6879
12. 909

1. 208
2. 4687
3. 1899
4. 2588

1. 1286
2. 165
3. 189
4. 190
5. 538
6. 108
7. 2519
8. 179
9. 621
10. 1145
11. 1338
12. 394
13. 2227
14. 1488
15. 2366
16. 78
17. 159
18. 789
19. 468
20. 949

Page 115.

1. 17
2. 19
3. 19
4. 28
5. 44
6. 55
7. 62
8. 84
9. 84
10. 97
11. 82
12. 105
13. 125
14. 21
15. 22
16. 29
17. 48
18. 56
19. 67
20. 67

Page 116.

1. 22 A.
2. $2.50
3. 38 mi.
4. 11
5. 76
6. 495 lb.
7. $102
8. 569
9. 601
10. $3.45
11. $35

Page 117.

1. 35
2. 125
3. 247
4. 123
5. 143
6. 192
7. 183
8. 298

1. 796
2. 733
3. 656
4. 78
5. 1332
6. 683
7. 972
8. 919

1. 8882
2. 33,581
3. 19,064
4. 4193
5. 25,726
6. 7889
7. 49,609
8. 39,890
9. 8919
10. 46,882
11. 6169
12. 8909
13. 8889
14. 1778
15. 18,889
16. 4889
17. 4242
18. 23,495
19. 16,688
20. 9784

Page 119.

1. $208
2. 359 mi.
3. $126 loss
4. 402 A.
5. 3150 gal.
6. 725 bu.
7. 4252 pairs
8. 167 cherry

Page 121.

1. 30c.
2. $800
3. $550
4. $126 trees
5. 90c.
6. 180c.
7. 84 eggs.

Page 124.

1. 3; 10; 20; 30; 400.
2. 4 pencils
3. 43 sacks
4. 100 qt.
5. 30 cans
6. 20 da.
7. 15 boys
8. 32 da.
9. 200 wagons
10. 300 tents
11. 400
12. 200
13. 300 shingles

Page 126.

1. 39 A.
2. $47
3. 10 apples
4. 59½ A.
5. ½ A.
6. 50 mi.
7. 111 A.
8. 40 lb.
9. 500
10. 500

Page 128.

1. 30
2. 40
3. 60
4. 4
5. 3
6. 2
7. 80
8. 20
9. 10
10. 6
11. 20
12. 24
13. 6
14. 4
15. 3
16. 30
17. 15
18. 40

1. 5
2. 12
3. 3
4. 50
5. 60
6. 61
7. 50
8. 120
9. 30
10. 62
11. 63
12. 50
13. 5
14. 40
15. 4
16. 51
17. 52
18. 31

1. 7⅛
2. 8⅛

3. $9\frac{1}{8}$
4. $7\frac{1}{7}$
5. $8\frac{1}{7}$
6. $9\frac{1}{7}$
7. $2\frac{1}{8}$
8. $3\frac{1}{8}$
9. $4\frac{1}{8}$

Page 129.

1. $1080
2. $125
3. 1120
4. 360 mi.
5. 30 mi.

Page 130.

1. 150
2. 160
3. 170
4. 180
5. 200
6. 220
7. 235
8. 250
9. 180
10. 252
11. 324
12. 408

1. 30
2. 20
3. 18
4. 15
5. 160
6. 80
7. 60
8. 40
9. 125
10. 120
11. 310
12. 315

1. 294
2. 378
3. 602
4. 644
5. 344
6. 456
7. 512
8. 608
9. 306
10. 423
11. 612
12. 873

1. 52; 1
2. 76; 1
3. 97; 1
4. 202; 2
5. 64; 2
6. 68; 3
7. 301; 2
8. 57; 2
9. 47; 1
10. 89; 3
11. 43; 2
12. 34; 2
13. 66; 2
14. 91; 8
15. 79; 8
16. 52; 2
17. 89; 10
18. 73; 1
19. 88; 2
20. 74; 11
21. 84; 2
22. 76; 9
23. 107; 8
24. 74; 9

Page 131.

2. 40 qt.
3. 40 bags
4. 14 qt.
5. 18 bu.
6. 3 pk.

Page 133.

1. 360 sq. in.
2. 1296 " "
3. 1056 " "
4. 1440 " "
5. 1728 " "
6. 120 " "
7. 375 " "
8. 625 " "
9. 875 " "
10. 100 " "

Page 134.

1. 6137
2. 6498
3. 6859
4. 7220

1. 182
2. 195
3. 221
4. 247
5. 255
6. 324
7. 247
8. 323
9. 930
10. 992
11. 1122
12. 2091
13. 1616
14. 1887
15. 2783
16. 15,600

1. 15,625
2. 18,125
3. 20,625
4. 23,125
5. 3850
6. 7740.
7. 8029
8. 8246
9. 2924
10. 4089
11. 5568
12. 4761
13. 17,157
14. 25,134
15. 36,516
16. 51,982

Page 135.

1. 12
2. 13
3. 11
4. 12
5. 12
6. 13
7. 14
8. 13
9. 11
10. 12
11. 13
12. 11

1. 22
2. 22
3. 22
4. 22
5. 21
6. 21
7. 21
8. 21
9. 23
10. 23
11. 23
12. 23

1. 44
2. 12
3. 48
4. 52
5. 66
6. 64
7. 62
8. 82

Page 137.

1. $1290
2. 604
3. 4997 lb.
4. 211 bu.
5. 123 da.
6. 144 da.
7. 2560 bu.
8. 143,360 lb.
9. 116 A.
10. 13
11. 10
12. 0

Page 138.

1. 618
2. 44
3. 225
4. 358
5. 190
6. 693
7. 167
8. 341
9. 909
10. 857
11. 672
12. 714

1. 12
2. 20
3. 31
4. 21
5. 11
6. 11
7. 20
8. 30
9. 30
10. 20
11. 40
12. 30
13. 21
14. 22
15. 22
16. 30

1. 1152
2. 2048
3. 648
4. 665
5. 1024
6. 1024
7. 1080
8. 1058
9. 1458.
10. 1458
11. 1476
12. 1470
13. 2976
14. 2976
15. 2976
16. 3036

1. 152
2. 195
3. 227
4. 238
5. 428
6. 919
7. 601
8. 999
9. 419½
10. 341½
11. 790½
12. 670½

Page 139.

1. 92
2. 703
3. 773
4. 618
5. 17,871
6. 16,231
7. 6159
8. 1766
9. 2950½
10. 711½
11. 566½
12. 102

1. 50,616
2. 13,566
3. 28,576
4. 31,668
5. 166,166
6. 238,185
7. 110,592
8. 78,204
9. 157,168
10. 234,612
11. 332,166
12. 129,168

1. 12
2. 20
3. 22
4. 22
5. $38\frac{19}{17}$
6. 43
7. 44
8. 44
9. 34
10. 33
11. 47
12. $38\frac{19}{17}$

1. 8
2. 16
3. 124
4. 32
5. 18
6. 192
7. 111
8. 18
9. 52
10. 94
11. 108
12. 184

1. 900
2. 192
3. 2848
4. 2940
5. 1850
6. 3168

Page 143.

1. 3785
2. 4548
3. 4291
4. 4267
5. 4653
6. 4152

1. 31,737
2. 21,519
3. 21,231
4. 18,381
5. 36,329
6. 42,159

1. 57,660
2. 60,624
3. 63,648

4. 53,090
5. 58,939
6. 61,538

Page 144.

1. 48,882
2. 63,574
3. 58,904
4. 164,089
5. 53,586
6. 278,906
7. 70,929
8. 196,989
9. 80,854
10. 96,882
11. 534,575
12. 118,898
13. 82,228
14. 88,777
15. 97,056
16. 243,969
17. 197,673
18. 92,885
19. 90,487
20. 290,216

1. 604
2. 1009
3. 1115
4. 35
5. 4283

Page 145.

1. 20,540
2. 18,574
3. 29,760
4. 62,244
5. 71,811
6. 91,134
7. 262,479
8. 112,224
9. 536,469
10. 692,860
11. 382,413
12. 692,898

1. $23\frac{8}{33}$
2. $20\frac{20}{41}$
3. $10\frac{51}{57}$
4. $29\frac{28}{34}$
5. $23\frac{28}{47}$
6. $47\frac{45}{48}$
7. $41\frac{7}{49}$
8. $50\frac{57}{59}$
9. $52\frac{34}{59}$
10. $52\frac{52}{76}$
11. $72\frac{51}{69}$

Page 146.

1. 3122 trees
2. $2498

Page 147.

3. 324 in.
4. $189
5. 1192 lb.; 7152 lb.
6. 144
7. 11 bu.
8. $14; $16
9. 1638 yd.
10. 4032 lb.
11. 16
12. 180,038
13. 380,006

Page 148.

3. $570
4. 211,200 ft.
5. 1450 t. p.
6. $8750
7. 6320
8. 8010

Page 149.

10. $15,000
11. 6600 bu.
12. 10,793
13. 13,991
15. 48,776 lb.

Page 150.

1. $25,920
2. $3129
3. $649

Page 151.

4. $1020
5. $8604
6. 11,718 bu.
7. 43,176 rails
8. $227,500
9. $29,854
10. 868,890 lb.
11. 8370 t. p.

1. 81,900
2. 43,282
3. 363,528
4. 313,548
5. 286,626
6. 76,475
7. 126,450
8. 697,437
9. 938,234
10. 2,882,104
11. 396,552
12. 269,853
13. 949,256
14. 1,810,792
15. 2,692,395

Page 152.

1. $18,790
2. 187,681
3. $171
4. 988 lb.
5. 42,240 yd.

Page 153.

6. 14,336 lb.
7. $23
8. 1997 lb.
9. 17,280 A.
10. $9100
11. 112 pears
12. 1626
13. $17
14. 6480 rails
15. 6080
16. 3

Page 154.

1. 1777
2. 2213
3. 1623
4. 1562
5. 1558
6. 1910
7. 2386
8. 1985
9. $404
10. $1002
11. $398
12. $607

1. 1410
2. 2789
3. 34
4. 507
5. 7312
6. 2878
7. 3789

8. 778
9. 5764
10. 879
11. 649
12. 559

1. 18,833
2. 30,037
3. 60,984
4. 61,506
5. 299,114
6. 203,984
7. 510,807
8. 803,709
9. 3375
10. 3360
11. 3328
12. 3264

1. 328
2. 738
3. 389
4. 498
5. 769
6. 698
7. 2
8. 10
9. 8
10. 2
11. 1
12. 2

Page 155.

1. 20
2. 20 s. m.
3. 200 A.
4. 22 bu.
5. 200 bills
6. 500 bundles
7. 22 hr.

Page 156.

1. 11 lb.
2. 12 boys
3. 7 cloaks
4. 121 times
5. 121 times

Page 157.

6. 55 qt.
7. 102 times
8. 104 men
9. 20 bu.
10. 24 hr.
11. 45 A.
12. 510 lb.
13. 26 trees
14. $31\frac{5}{2}$ hr.
15. 25 quires
16. 40 doz.
17. 309 panels
18. $66\frac{2}{3}$ mo.
19. 23 times

Page 159.

1. 501 lb.
3. $22
4. 32 lb.
5. 180 mi.
6. 972 bricks
7. 29 t. p.
8. $.50
9. $3500
10. $33\frac{1}{3}$ mi.
11. 18c.
12. 24 sheets

Page 160.

3. $1650
4. $1400
5. $6
6. 7 hogs
7. $122\frac{1}{3}$ bu.

Page 161.

1. 14 hr.
2. 68 mi.
3. 43 bales
4. 34 days
5. 25 bu.
6. 17 A.

Page 162.

7. $22
8. 143 A.
9. 124 vines
10. 132 rows
11. 22 bu.
12. 23 A.
13. 22 bu.

1. $50\frac{80}{115}$
2. 143
3. $265\frac{8}{11}$
4. 40
5. 116
6. 243
7. $275\frac{1}{23}$
8. 105
9. 125
10. 50
11. 143
12. 245

1. 126
2. 161
3. 239
4. 232
5. 236
6. 172
7. 234
8. 165
9. 242
10. 235
11. $238\frac{1}{168}$
12. 244

Page 163.

1. 246
2. 249
3. $279\frac{1}{234}$
4. 254
5. 277
6. 257
7. 247
8. 252
9. 281
10. 274
11. 253
12. 278

1. 276
2. 302
3. 363
4. 291
5. 298
6. 299
7. 299
8. 279
9. $277\frac{1}{3}\frac{1}{76}$
10. 299
11. $364\frac{10}{279}$
12. 279

Page 165.

2. 3 pk.
3. $2.50
4. 40 da.
5. 11 lb.
6. $5.55
7. $1.20
8. $3
9. $8

10. 20 lb.
11. $.55
12. 32 lb.

Page 167.

1. $522\frac{1}{2}$
2. $1275\frac{1}{2}$
3. $1079\frac{1}{2}$
4. $1007\frac{1}{4}$
5. $224\frac{3}{4}$
6. 174
7. $288\frac{3}{4}$
8. 205

1. $5\frac{1}{2}$
2. $30\frac{1}{2}$
3. 50
4. $11\frac{1}{2}$
5. $19\frac{1}{4}$
6. 50
7. 6001
8. 1728
9. $6\frac{1}{4}$

1. 64,144
2. 53,332
3. 86,063
4. 52,962
5. 17,784
6. 32,383
7. 61,893
8. 65,863
9. 96,596
10. 190,414
11. 185,472
12. 658,242

1. 56
2. $69\frac{3}{29}$
3. $128\frac{15}{17}$
4. $100\frac{21}{37}$
5. $39\frac{19}{42}$
6. $51\frac{33}{39}$
7. $59\frac{13}{11}$
8. $113\frac{45}{69}$
9. 89
10. $18\frac{17}{38}$
11. $19\frac{1}{19}$
12. $67\frac{24}{39}$

1. $50\frac{19}{78}$
2. $260\frac{11}{77}$
3. $362\frac{8}{68}$
4. $301\frac{4}{78}$
5. $133\frac{16}{64}$
6. $146\frac{31}{56}$
7. $425\frac{4}{38}$
8. $495\frac{42}{54}$

Page 168.

1. $30\frac{1}{2}$
2. $4\frac{1}{2}$
3. $8\frac{1}{2}$
4. $13\frac{1}{2}$
5. 9
6. 10
7. $8\frac{3}{4}$
8. $40\frac{1}{2}$
9. 50
10. 75
11. 4
12. 10

1. $11\frac{1}{2}$
2. $11\frac{1}{2}$
3. $11\frac{1}{2}$
4. 25
5. 14
6. 13
7. $13\frac{1}{2}$
8. $13\frac{1}{2}$
9. $13\frac{1}{2}$

Page 169.

1. $14\frac{1}{2}$
2. $14\frac{1}{2}$
3. $14\frac{1}{2}$
4. $19\frac{1}{2}$
5. 20
6. 20
7. 20
8. 18
9. 26

1. $19\frac{1}{2}$
2. $19\frac{1}{2}$
3. $19\frac{1}{2}$
4. 5
5. $7\frac{1}{2}$
6. $6\frac{1}{2}$
7. $17\frac{1}{2}$
8. $18\frac{1}{2}$
9. $20\frac{1}{2}$

Page 170.

1. $21\frac{1}{8}$
2. 22
3. 9
4. $\frac{3}{4}$
5. $8\frac{7}{8}$
6. $8\frac{3}{8}$
7. $8\frac{5}{8}$
8. $9\frac{3}{8}$
9. 14
10. $4\frac{1}{8}$
11. $8\frac{1}{8}$
12. $10\frac{5}{8}$

1. 15
2. $17\frac{1}{2}$
3. $22\frac{1}{2}$
4. $19\frac{1}{8}$
5. $11\frac{1}{8}$
6. $19\frac{3}{8}$
7. $\frac{7}{8}$
8. $\frac{5}{8}$
9. $1\frac{5}{8}$

Page 171.

1. $36\frac{3}{4}$
2. 37
3. $36\frac{1}{2}$
4. $27\frac{3}{4}$
5. $37\frac{3}{4}$

1. $8\frac{1}{4}$
2. $8\frac{1}{8}$
3. $10\frac{1}{8}$
4. $10\frac{1}{2}$
5. $10\frac{1}{8}$
6. $\frac{1}{8}$
7. $\frac{1}{8}$
8. $\frac{1}{8}$

Page 173.

1. $23\frac{3}{4}$
2. $30\frac{3}{8}$
3. $54\frac{1}{2}$
4. $36\frac{5}{8}$
5. $63\frac{3}{8}$
6. $53\frac{5}{8}$
7. $80\frac{7}{8}$
8. $82\frac{1}{2}$

1. $2\frac{1}{8}$
2. $4\frac{1}{8}$
3. $3\frac{3}{8}$
4. $\frac{1}{8}$
5. $\frac{1}{2}$
6. $6\frac{1}{8}$
7. $6\frac{1}{2}$
8. $\frac{1}{8}$
9. $\frac{1}{2}$
10. $1\frac{3}{8}$

11. $1\frac{1}{2}$
12. $7\frac{1}{8}$

1. $107\frac{1}{2}$
2. 110
3. 65
4. 68
5. 16
6. 20
7. 66
8. 123
9. 154
10. 392
11. 285
12. 114

1. $21\frac{1}{8}$
2. 25
3. 100
4. 200
5. $37\frac{1}{2}$
6. 50
7. 150 10. 100
8. 400 11. 500
9. $111\frac{1}{9}$ 12. 440

1. 31
2. 49
3. 65
4. 200
5. 400
6. 440
7. 300
8. 360
9. 390

Page 175.

1. $22.22
2. $24.50
3. $46.47
4. $112.50
5. $17\frac{1}{2}$ doz.
6. $1.75
7. $2.75
8. $5
9. $135.05
10. $212.66
11. $153
12. $.22
13. $.41
14. $.29

Page 176.

1. 1.87
2. 362.92
3. .21
4. 2.58
5. 374.42
6. .41
7. 4.04
8. 342.71
9. .29

Page 177.

1. $953.95
2. 54.21
3. 31.06
4. $1207.30
5. $710.81
6. $2604.45
7. 646.25

1. $7.18
2. 199.09
3. $270.20
4. 300.5

1. $634.68
2. 1.05
3. $1.25
4. $518.90
5. .07
6. $512.02
7. $99.90
8. .7
9. $177.25

1. $8553.80
2. 1525.7
3. $5578.55
4. $21,601.35
5. 1112.73
6. $4127.75
7. $30,830.80
8. 1252.5
9. $13,795.60

1. $25
2. 10.1
3. 111.01
4. $.83
5. 11.16
6. 2.02
7. $2.09
8. 20.1
9. 1.01

Page 179.

1. $11,250
2. $\frac{3}{4}$
3. $1\frac{1}{4}$
4. $52.50
5. $3\frac{1}{2}$
6. 880 mi.
7. 12 oz.
8. 150 steps
9. $.10
10. $1.40
11. 560 mi.
12. 121 mi.
13. $23.10
14. $15

Page 180.

1. 1387.91
2. 2108.38
3. 16,190.67
4. $92.13

1. 2043
2. 273
3. 384
4. 1009
5. 2063
6. 899
7. 394
8. 63
9. $11.11
10. $31.55
11. $5.55
12. $.45

1. 335,610
2. 197,883
3. 466,176
4. 662,948
5. $87,500
6. $168,750
7. $300,000
8. $562,500
9. $3750
10. $5550
11. $6825
12. $6600

1. 363
2. 299
3. 277
4. $14.01
5. $8.01
6. $60.01
7. 279
8. 352
9. 389

1. 8
2. 65
3. 56
4. 99,216
5. 218,456
6. 195,130
7. $157\frac{4}{24}$
8. 136
9. 216

Page 182.

1. $\frac{25}{4}$
2. $\frac{15}{2}$
3. $\frac{78}{4}$
4. $\frac{20}{5}$
5. $\frac{25}{3}$
6. $\frac{125}{4}$
7. $\frac{75}{2}$
8. $\frac{50}{3}$
9. $\frac{15}{4}$
10. $\frac{125}{4}$
11. $\frac{10}{3}$
12. $\frac{100}{3}$

Page 184.

1. 337 trees
2. 1176 "
3. 51,929
4. 25c.
5. 180 mi.
6. $341.25
7. 70 horses
8. 650 A.
9. 304 mi.
10. $3\frac{3}{4}$ lb.
11. 53 qr. b.
12. $5.

Page 185.

1. $11\frac{1}{2}$
2. $3\frac{3}{5}$
3. $5\frac{1}{6}$
4. $7\frac{1}{7}$
5. $7\frac{1}{9}$
6. 9
7. $5\frac{1}{3}$
8. $60\frac{3}{8}$
9. $35\frac{1}{2}$
10. $5\frac{7}{8}$
11. $14\frac{2}{3}$
12. $32\frac{3}{4}$

Page 186.

1. 270 lb.
2. 175 b.
3. 27 A.
4. 8232 lb.
5. 9849 bu.
6. $46.10
7. 9216 lb.
8. 34 T.
9. $1.35

Page 187.

1. $\frac{207}{2}$
2. $\frac{1642}{6}$
3. $\frac{2048}{9}$
4. $\frac{1011}{10}$
5. $\frac{112}{3}$
6. $\frac{1741}{8}$
7. $\frac{2868}{5}$
8. $\frac{2477}{10}$
9. $\frac{1029}{8}$
10. $\frac{807}{4}$
11. $\frac{2515}{8}$
12. $\frac{5569}{9}$
13. $\frac{493}{5}$
14. $\frac{947}{3}$
15. $\frac{382}{3}$
16. $\frac{1066}{9}$

1. $98\frac{3}{8}$
2. $20\frac{9}{10}$
3. $68\frac{5}{8}$
4. $97\frac{9}{16}$
5. 88
6. $35\frac{3}{4}$
7. $73\frac{7}{7}$
8. $97\frac{10}{12}$
9. $53\frac{3}{8}$
10. $123\frac{3}{8}$
11. $33\frac{1}{2}$
12. $18\frac{1}{8}$

1. 1740
2. 2867
3. 3238
4. $1242\frac{1}{4}$

1. 25
2. $3\frac{1}{8}$
3. $12\frac{1}{2}$
4. 50
5. $33\frac{1}{3}$
6. $62\frac{1}{2}$
7. $37\frac{1}{2}$
8. $62\frac{1}{2}$
9. $87\frac{1}{2}$
10. $62\frac{1}{2}$
11. $31\frac{1}{2}$
12. $37\frac{1}{2}$
13. $86\frac{1}{2}$
14. $18\frac{1}{2}$
15. $66\frac{2}{3}$
16. $37\frac{1}{2}$
17. $43\frac{1}{8}$
18. $33\frac{1}{3}$

Page 188.

6. $11\frac{1}{2}$

Page 189.

1. 354 mi.
2. 606 mi.
3. 491 gal.
4. 424 bu.
5. 24 mi.
6. 521 bu.
7. $1431\frac{3}{8}$ bu.
8. $\$74\frac{1}{4}$

Page 190.

1. $32\frac{1}{4}$
2. $40\frac{1}{2}$
3. $12\frac{1}{2}$
4. $11\frac{5}{12}$
5. $33\frac{1}{2}$
6. $40\frac{4}{5}$
7. $16\frac{7}{8}$
8. $10\frac{9}{12}$
9. $32\frac{7}{8}$
10. $41\frac{1}{8}$
11. $18\frac{1}{2}$
12. $13\frac{7}{12}$
13. $33\frac{1}{3}$
14. $40\frac{5}{8}$
15. $19\frac{3}{8}$
16. $17\frac{1}{12}$

1. $2\frac{3}{8}$
2. $12\frac{7}{8}$
3. $8\frac{5}{8}$
4. $4\frac{1}{2}$
5. $2\frac{3}{4}$
6. $13\frac{5}{9}$
7. $22\frac{1}{2}$
8. $4\frac{3}{8}$
9. $8\frac{1}{2}$
10. $7\frac{3}{8}$
11. $15\frac{5}{9}$
12. $1\frac{3}{12}$

13. $10\frac{7}{8}$
14. $16\frac{3}{4}$
15. $9\frac{3}{6}$
16. $1\frac{8}{12}$

Page 191.

3. $\frac{1}{2}$
4. $\frac{9}{10}$
5. $\frac{7}{10}$
6. $\frac{3}{4}$
7. $\frac{3}{8}$
8. $\frac{3}{8}$
9. $\frac{1}{2}$

Page 192.

1. $1\frac{5}{12}$
2. $\frac{7}{8}$
3. $1\frac{1}{24}$
4. $1\frac{7}{12}$
5. $2\frac{3}{24}$
6. $1\frac{1}{8}$
7. $\frac{3}{8}$
8. $\frac{3}{4}$
9. $\frac{13}{24}$

Page 194.

1. 60
2. 10
3. 20
4. 6
5. 64
6. 24
7. 4
8. 12
9. 60
10. 35
11. 28
12. 20

Page 195.

1. 132
2. $100\frac{4}{5}$
3. 300
4. $21\frac{1}{2}$
5. $148\frac{1}{4}$
6. $114\frac{3}{7}$
7. 600
8. $31\frac{1}{3}$
9. 83
10. 150
11. 150
12. 59

1. \$7.50
2. 200 lb.
3. $13\frac{1}{2}$ mi.
4. \$2.25
5. \$225
6. 350 ft.

1. $\frac{4}{7}$
2. $\frac{12}{15}$
3. $\frac{27}{40}$
4. $\frac{9}{28}$
5. $\frac{8}{8}$
6. $\frac{4}{21}$
7. $\frac{21}{40}$
8. $\frac{1}{2}$
9. $\frac{3}{7}$
10. $\frac{8}{8}$
11. $\frac{2}{3}$
12. $\frac{1}{8}$
13. $\frac{3}{8}$
14. $\frac{7}{24}$
15. $\frac{4}{8}$

Page 196.

1. $3\frac{13}{56}$
2. $16\frac{17}{32}$
3. $11\frac{1}{49}$
4. 49
5. $156\frac{1}{4}$
6. $137\frac{3}{8}$
7. $22\frac{1}{2}$
8. $208\frac{1}{8}$
9. 1250

Page 197.

1. $6\frac{1}{4}$
2. $6\frac{1}{4}$
3. $6\frac{1}{8}$
4. $4\frac{3}{9}$
5. $33\frac{1}{3}$
6. $6\frac{1}{9}$

1. 28
2. 144
3. 256
4. 45
5. 196
6. 324
7. 64
8. 150
9. 400

1. 24
2. 36
3. 36
4. 24
5. 112
6. 60
7. 25
8. 63
9. 144

Page 198.

1. $\frac{3}{4}$
2. $1\frac{1}{7}$
3. $1\frac{1}{3}$
4. $1\frac{1}{15}$
5. $1\frac{1}{7}$
6. $1\frac{5}{16}$
7. $\frac{3}{3}$
8. $1\frac{1}{7}$
9. $2\frac{3}{27}$

1. $4\frac{11}{16}$
2. $1\frac{11}{16}$
3. $1\frac{13}{27}$
4. $1\frac{17}{36}$
5. $1\frac{1}{3}$
6. $2\frac{92}{119}$
7. 6
8. $5\frac{1}{3}$
9. $\frac{16}{21}$

Page 200.

1. $\frac{23}{24}$
2. $\frac{7}{12}$
3. $3\frac{13}{36}$
4. $1\frac{339}{1176}$
5. $1\frac{5}{24}$
6. $\frac{1}{12}$
7. $18\frac{1}{8}$
8. $1\frac{7}{8}$
9. $\frac{30}{21}$
10. $\frac{7}{24}$
11. $4\frac{3}{8}$
12. $1\frac{33}{160}$
13. $\frac{17}{20}$
14. $\frac{5}{12}$
15. $32\frac{1}{12}$
16. $5\frac{11}{44}$

1. $78\frac{5}{24}$ c.
2. $\frac{19}{20}$
3. $581\frac{7}{8}$ bu.
4. $\frac{17}{48}$ mi.
5. $\frac{1}{8}$
6. \$$74\frac{3}{4}$
7. $7\frac{1}{2}$ mi.

Page 201.

8. $22\frac{1}{2}$ T.

9. $84\frac{1}{2}$ bu.
10. $\frac{1}{2}$ of it
11. $\frac{5}{11}$ of it
12. $\$\frac{5}{10}$
13. $\frac{1}{10}$ mi.
14. $53\frac{1}{2}$ da.
15. $43\frac{1}{2}$ A.
16. $57\frac{1}{2}$ bu.
17. 175 bu.

Page 204.

1. $2185.82
2. $2582.38
3. $5231.72
4. $2221.41

1. $372.30
2. $1545.89
3. $4250.16
4. $64.20
5. $4057.75
6. $3810.85
7. $272.38
8. $2412.15
9. $1513.25
10. $295.10

1. $18,342
2. $25,151.70
3. $101,500
4. $20,151.25
5. $20,256.75
6. $197,660.80
7. $10,748.25
8. $6543
9. $107,276
10. $19,666.40
11. $11,321.60
12. $41,164.90
13. $7362
14. $29,970
15. $47,899

1. $21.03
2. $7.23
3. 1220
4. $26.01
5. $12
6. 3004
7. $36
8. $8.02
9. 5600
10. $35.03
11. $4.05
12. 16,325
13. $12.02
14. $12.03
15. 16,000

Page 205.

1. $14.15
2. $51.02
3. 1.98
4. $39.75
5. $333,399.78
6. 1.62
7. .162
8. .0162
9. .9793

Page 206.

10. .703
11. .7003
12. 1.396

1. $125
2. $4810
3. $600
4. $1.70

Page 208.

1. $12.96
2. $21.10
3. $111.88
4. $212
5. $15.36

Page 210.

1. 3.125
2. 31.25
3. 31.375
4. 313.75
5. $3.1375
6. $.31375
7. 3.3364
8. .031375
9. 29,736.909

Page 211.

1. 14.215 T.
2. $3\frac{7}{16}$ mi.
3. $60
4. 1.04 ft.
5. 9.38
6. 36.975 mi.
7. 71.595
8. 1127 gal.
9. 50
10. $\$12\frac{1}{5}$
11. $11,811\frac{3}{32}$

Page 212.

1. $52.15
2. $.33
3. 12.75 mi.
4. $.03

Page 213.

5. 315 mi.
7. 700 times

1. 4.15
2. 41.5
3. 415
4. 8
5. 80
6. 5.04
7. 1304
8. 48
9. 24

Page 215.

1. 5
2. 12
3. 14
4. 16
5. 60
6. 90
7. 30
8. 20
9. 100
10. 50

Page 216.

1. $5
2. $10
3. 5%
4. 15%
5. 94 a.
6. 30c.
7. $520
8. $510
9. $690
10. 10 yr.
11. 10%

Page 217.

1. 1190 ft.
2. 32 b.
3. 3600 sq. in.
4. 252 sq. ft.

Page 219.

1. 51 qt.
2. 21 gal. 1qt.
3. 10 gal.
4. $11.34
5. $36.50
6. $91\frac{1}{2}$ gal.
7. 50 gal.
8. 10 bu.
9. 53 ft.
10. 1 bu. 3 pk.
11. $6.72
12. $37\frac{1}{2}$ mi.

Page 222.

1. $7.50
2. $16\frac{2}{3}$ A.
3. $15\frac{1}{50}$ T.
4. 206 pa.
5. $\frac{14}{15}$ ft.
6. $3\frac{7}{8}$ lb.
7. $9\frac{7}{24}$ A.
8. $77\frac{1}{2}$ lb.
9. $72\frac{1}{40}$

Page 223.

10. $743\frac{3}{4}$ bu.
11. $11\frac{7}{9}$ hr.
12. $66\frac{1}{3}$ A.
13. 412 A.
14. $13,846
15. 1050 lb.
16. $83.35
17. $2\frac{1}{12}$ yd.
18. $\frac{2}{15}$
19. $3\frac{3}{8}$
20. $4\frac{1}{12}$

Page 224.

1. $12\frac{1}{2}$c.; 8 doz.
2. $50; $16\frac{2}{3}$c.
3. $30; $6\frac{2}{3}$c.
4. 216 lb.; 6 lb.

Page 225.

5. 800 pr.; 8 pr.
6. $20; $6\frac{2}{3}$c.
7. $20; $11\frac{1}{9}$c.

Page 226.

1. 300 mi.
2. $30
3. 10 hr.
4. $12
5. $4
6. $1.20
7. $6.25
8. 36 bu.

Page 227.

9. $37.50
10. $3
11. 12 hr.
12. 120 da.
13. 800 or.

1. $300
2. $150
3. $40
4. $500
5. $250
6. $60
7. $7.50
8. $5000

Page 229.

1. $1558\frac{1}{3}$ bu.
2. $7\frac{5}{8}$ mi.
3. $179\frac{3}{4}$ ft.
4. $20\frac{7}{8}$ mi.
5. $1\frac{3}{8}$ lb.

1. $7\frac{1}{4}$
2. $1\frac{1}{16}$
3. $\frac{5}{8}$
4. $1\frac{7}{12}$
5. $\frac{5}{8}$
6. $11\frac{3}{8}$
7. $9\frac{5}{8}$
8. 60
9. $27\frac{1}{3}$
10. $8\frac{5}{12}$

Page 230.

1. $26\frac{1}{2}$ bu.
2. $8\frac{1}{3}$ mi.
3. 27 mi.
4. $516
5. $37.17
6. $760\frac{5}{12}$ bu.
7. $228\frac{3}{8}$ sq. ft.

1. $101\frac{1}{7}$
2. $156\frac{3}{8}$
3. $171\frac{5}{9}$
4. $378\frac{7}{12}$
5. $561\frac{7}{16}$
6. 498
7. $218\frac{3}{4}$
8. $940\frac{1}{2}$
9. 623
10. 2000
11. $\frac{5}{16}$
12. $\frac{8}{15}$
13. $\frac{5}{12}$
14. $\frac{4}{63}$
15. $\frac{7}{33}$

Page 231.

1. 24 bags
2. 150 bu.
3. $2\frac{1}{2}$ yd.
4. 48 times
5. $\frac{5}{8}$ bu.
6. $\frac{8}{14}$ A.
7. $17\frac{7}{12}$ lb.

Page 232.

1. $1
2. 14 boxes
3. 64 pupils
4. 120 pieces
5. $\frac{1}{2}$ qt.
6. $6\frac{1}{2}$ gal.
7. 10 times
8. $\frac{1}{8}$ A.

1. $66\frac{2}{3}$
2. $37\frac{1}{2}$
3. $87\frac{1}{4}$
4. $52\frac{1}{2}$
5. $83\frac{1}{3}$
6. $16\frac{2}{3}$
7. $18\frac{3}{4}$
8. 56
9. 81
10. 81
11. $2\frac{2}{15}$
12. $1\frac{3}{5}$
13. $\frac{25}{33}$
14. $3\frac{3}{5}$
15. $\frac{14}{21}$
16. $1\frac{1}{45}$
17. $1\frac{1}{24}$
18. $1\frac{1}{10}$

19. $\frac{17}{16}$
20. $\frac{1}{4}$

Page 234.

1. 12 lb. 2 oz.
2. 1 lb. 10 oz.
3. 11 lb. 13 oz.
4. 11 lb. 7 oz.
5. 14 bu. 4 qt.
6. 3 qt.
7. 6 da.
8. 1 wk. 3 da.

Page 235.

1. 50 in.
2. 15 yd.
3. 18 gal. 2 qt.
4. 26 gal. 3 qt. 1 pt.
5. 43 gal. 2 qt.
6. 33 ft. 4 in.
7. 56 ft. 3 in.
8. 74 ft. 2 in.

Page 236.

9. 66 bu. 2 pk. 7 qt.
10. 70 bu.
11. 63 bu. 1 pk.
12. 12 ft.
13. 25 yd. 2 ft.
14. 13 rd.

1. 2 lb. 4 oz.
2. 14 lb. 4 oz.
3. 4 lb. 4 oz.
4. 7 lb. 7 oz.
5. 1 wk. 5 da.
6. 2 hr. 25 min.
7. 1 da. 6 hr.
8. 1 bu. 1 pk.
9. 1 pk. 7 qt.

Page 237.

11. 3 yd. 1 ft. 4 in.
12. 1 yd. 11 in.
13. 7 bu. 2 pk.
14. 2 bu. 3 pk. 7 qt.
15. 51 yd. 2 ft.
16. 23 bu. 1 pk.
17. 39 pt.
18. $1.95
19. 1 gal. 1 qt.
20. 8 in.
21. 2 bu.
22. 75 yd.
23. 33 yd. 1 ft. 8 in.

Page 239.

1. 30 sq. in.
2. 5000 sq. ft.
3. 37½ A.
4. 10 A.
5. 2070 sq. rd.

Page 241.

1. 12⅘ A.
2. 45 sq. rd.; 28 rd.
3. $8000
4. 100 sq. rd.
5. 400 sq. rd.
6. 94½ sq. ft.
7. 1600 A.
8. 216 sq. in.
9. 36 sq. ft.
10. 576 sq. in.
11. 272½ sq. ft.
12. 30 sq. yd.
13. $45
14. 90 sq. yd.
15. ⅔ sq. ft.
16. ⅓ sq. yd.
17. 16 in.

Page 243.

1. $65
2. 50 A.

Page 244.

3. 15c.; 60c.
4. $18
5. 60 mi.
6. $2.40
7. 32 sq. yd.
8. $105
9. $12
10. $526.50
11. $13.50
12. 250 mi.

Page 245.

1. 12½
2. 21
3. 33
4. 108
5. 161
6. 56½
7. 40.5
8. 151½
9. 333
10. 281½
11. 500
12. 1400
13. 33
14. 161
15. 500

Page 246.

2. 25%
3. 16⅔%
4. 20%
5. 25%

Page 247.

6. 25%
7. 5%
8. 16⅔%
9. 2%
10. 30%
11. 66⅔%
12. 37½%
13. 2%

Page 248.

2. $20
3. 3000 gal.
4. 2000 bu.
5. $2000

Page 249.

6. $4000
7. 480 mi.
8. 333⅓
9. 300
10. 200
11. 144
12. 350
13. 280
14. 333⅓
15. 300
16. 200
17. 144
18. 350
19. 280

Page 250.

1. $4500
2. $312
3. $36
4. 800 lb.
5. 1333⅓ lb.

Page 251.

6. 15 %
7. 85 %
8. 72 A.
9. $53,040
10. 7200 bu.
11. $43.75
12. $126; $3024.
13. $10,696
14. $8350
15. $1248
16. $9000

Page 252.

17. 30,105 votes
18. 75 %
19. 475 T.
20. $15.75
21. $63
22. 3½ %
23. 10 %
24. $640
25. 20 %
26. 25 %
27. 95 %

Page 253.

2. $210
3. $255
4. $285
5. $196
6. $196

Page 254.

2. $11.25
3. $134.55
4. $131.25
5. $9.92

2. $1.25
3. $69.92
4. $17.25
5. $30.80

Page 255.

2. 5 yr. 10 mo. 3 da.
3. 4 yr. 10 mo. 27 da.

Page 256.

5. $675.25
6. $817.50
7. $28.12½
8. $1030
9. $1563.10
10. $384.56

Page 258.

1. 27 A.

Page 259.

2. 63 mi.
3. 1540 yd.
4. 2921 loads
5. 9000 lb.
6. 3960 ft.
7. $29.75
8. 112,896 lb.
9. 576,000 A.; 900 sq. mi.
10. $240

Page 260.

11. $89.75
12. $100
13. $4.48
14. 25 da.
15. 16⅔ %
16. 371½ mi.
17. $79.20
18. $94.50
19. $16.40
20. 450 bu.

Page 261.

21. 12½ %
22. 365 da.
23. 6½ hr.
24. 32 lb.
25. $15
26. 3 bbl.
27. $3.75
28. $5.10
29. 3:30 p. m.
30. $73.50
31. 6¼ %

Page 262.

32. $53.62
33. ⅛ bbl.
34. $6.55
35. 512 rd.
36. 640 rd.
37. 8000 sacks
38. 2100 lb.
39. 34 f.
40. 69 bu.

Page 263.

41. 94⅔ bu.; $75.80
42. 27⅞ A.
43. $70
44. $1694.06+
45. $2500
46. 80 da.
47. $97.79 +
48. $3
49. 56⅝ lb.
50. 56¼ %
51. $8777.83 +
52. 66⅔ da.

Page 264.

53. 102$\frac{17}{24}$ A.
54. 1⅞ lb.
55. 50 vests
56. $45
57. 9$\frac{87}{7}$ %
58. 385 yd.
59. $34.22 +
60. $828.12½
61. ⅓ of 66⅔
62. 95⅞ lb.
63. ¼ melon

Page 265.

64. $120
65. ¼ cent
66. 1218¾ bu.; 21,600 lb.
67. 5400 lb.; 406¼ bu.
68. 1800 lb.; 3600 lb.
69. 450 lb.
70. 474 lb.

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